



Learning Objectives

1. Analyze the structure of matter

2. Calculate the amount of matter

3. Calculate the energy of matter

4. Calculate the rate of change

5. Calculate the equilibrium constant

6. Calculate the Gibbs free energy

7. Calculate the enthalpy of reaction

8. Calculate the entropy of reaction

9. Calculate the cell potential

10. Calculate the half-life

11. Calculate the rate constant

12. Calculate the activation energy

13. Calculate the equilibrium constant

14. Calculate the Gibbs free energy

15. Calculate the enthalpy of reaction

16. Calculate the entropy of reaction

17. Calculate the cell potential

18. Calculate the half-life

19. Calculate the rate constant

20. Calculate the activation energy

21. Calculate the equilibrium constant

22. Calculate the Gibbs free energy

23. Calculate the enthalpy of reaction

24. Calculate the entropy of reaction

25. Calculate the cell potential

26. Calculate the half-life

27. Calculate the rate constant

28. Calculate the activation energy

29. Calculate the equilibrium constant

30. Calculate the Gibbs free energy

31. Calculate the enthalpy of reaction

32. Calculate the entropy of reaction

33. Calculate the cell potential

34. Calculate the half-life

- Observe the complexity of the biochemical and physiological systems

of environmental chemistry

of environmental chemistry

of environmental chemistry

of environmental chemistry

of environmental chemistry

Specific Coverage:

I. Introduction to Organic Chemistry and Functional Groups

II. Alkyl Halides

III. Classification and Functions: Halos of

IV. Structure and Functions of Proteins

road Safety and Society

Course Rationale: This is a general education course. Structure is a fundamental

Course Objectives: Chemistry 104 is part of the UAE General Education Curriculum. The

Laboratory Projects

10:00 - 11:00

11:00 - 12:00

12:00 - 13:00

13:00 - 14:00

14:00 - 15:00

15:00 - 16:00

16:00 - 17:00

17:00 - 18:00

Project 1: Introduction to the Lab

Students will be assigned to groups and given a brief overview of the lab and the projects. This session will also cover the lab safety rules and the importance of maintaining accurate records.

Project 2: Synthesis of a Simple Organic Compound

Students will perform a synthesis of a simple organic compound, such as acetophenone, and learn the basic techniques of organic synthesis, including weighing, measuring, and stirring.

Project 3: Purification of a Crude Product

Students will learn the techniques of purification, such as recrystallization and distillation, and apply them to the purification of a crude product.

Project 4: Characterization of a Pure Compound

Students will learn the techniques of characterization, such as melting point determination, IR spectroscopy, and NMR spectroscopy, and apply them to the characterization of a pure compound.

Project 5: Synthesis of a More Complex Organic Compound

Students will perform a synthesis of a more complex organic compound, such as a substituted benzene, and learn the techniques of multi-step synthesis.

Project 6: Purification and Characterization of a Complex Product

Students will learn the techniques of purification and characterization for a complex product, such as a substituted benzene, and apply them to the purification and characterization of a complex product.

Project 7: Synthesis of a Natural Product

Students will perform a synthesis of a natural product, such as a substituted benzene, and learn the techniques of synthesis and characterization of a natural product.

Project 8: Synthesis of a Polymer

Students will perform a synthesis of a polymer, such as a substituted benzene, and learn the techniques of synthesis and characterization of a polymer.

Project 9: Synthesis of a Drug

Students will perform a synthesis of a drug, such as a substituted benzene, and learn the techniques of synthesis and characterization of a drug.

Project 10: Synthesis of a Material

Students will perform a synthesis of a material, such as a substituted benzene, and learn the techniques of synthesis and characterization of a material.

Project 11: Synthesis of a Catalyst

Students will perform a synthesis of a catalyst, such as a substituted benzene, and learn the techniques of synthesis and characterization of a catalyst.

Project 12: Synthesis of a Pigment

Students will perform a synthesis of a pigment, such as a substituted benzene, and learn the techniques of synthesis and characterization of a pigment.

Project 13: Synthesis of a Dye

Students will perform a synthesis of a dye, such as a substituted benzene, and learn the techniques of synthesis and characterization of a dye.

Unexcused absences may result in a grade of F.

Be sure to communicate early via email sent to your UArctic instructor.

Jointly

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Organic Chemistry: Structure and Function

4 10/18
5 20

Exam 1
Amines and Esters
Carbohydrates

Exam 2
Proteins - Structure & Function

7 20

Exam 3

40 10 25 Gene Expression

Exam 4

29 Biosynthetic pathways

15

(EXAM 3)

10 25

Title IX Protection

You may confidentially disclose and access confidential information

monies of certain types of trusts when I am required to file a return in the appropriate
jurisdiction. For more information on your rights as a trust beneficiary, please see the

Individual Obligations

believes you are experiencing difficulty

document includ

3. You may

HONOR CODE: Students agree

ability services from a...

...The ... Office of Dis...

1. UAF is an AA/EQ employer and educational institution and prohibits illegal discrimination against individuals

2. This course follows the UAF policy Incomplete Grade Policy.
The Incomplete Grade Policy

same as a C for this course.

3. UAF C grade policy
C grade is not the

available (807-474-5470)

4. Speaking Center is a

WATH lab is available in the Learning

6. Learning

9. Extended Absence Policy for

- 1. Extended Absence
- 2. Extended Absence
- 3. Extended Absence

8. Technical

