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Course Information

Course Title: Intro to Chemistry II/Lab: SC1

Course Prefix, Number & Section: CHE.102.104

Credits: 5

Course Description: Focuses on introductory organic and biochemistry (sequel to Introduction to Chemistry I). This course includes the study of hybridization of atomic orbitals for carbon, nomenclature of both organic and biochemical compounds, physical and chemical properties of various functional groups of organic chemistry, and physical and chemical properties of biochemical compounds along with their biochemical pathways. Laboratory experiments are included.

Guaranteed Transfer (GT) Pathways Course Statement: The Colorado Commission on Higher Education has approved CHE 102 for inclusion in the Guaranteed Transfer (GT) Pathways program in the GT- SC1 category. For transferring students, successful completion with a minimum C- grade guarantees transfer and application of credit in this GT Pathways category. For more information on the GT Pathways program, go to <http://highered.colorado.gov/academics/transfers/gtpathways/curriculum.html>.

Prerequisite(s)/Co-requisites: CHE 101 or Instructor Permission

Semester and Year: Spring 2018

Meeting Location, Times, and Days: MWF in WRECT 106 from 7:45-9:00 and Lab – TR in WRECT 110 from 12:45-2:25

Start Date: January 8, 2018

End Date: May 2, 2018

Last date to drop with a refund: January 23, 2018

Last date to withdraw: April 11, 2018

Date and Time of Final Exam: Part 1 – Monday, April 30 7:45-9:45 and Part 2 – Tuesday May 1 1:00-3:00

Instructor Information

Name: Jay McLaughlin

Phone: 970-675-3254

E-mail: jay.mclaughlin@cnc.edu

Office Location: WRECT 119

Office Hours: MW 12:45-2:00, TR 9:15-10:30

Course Information

The instructor reserves the right to make changes to the course and course policies. Any changes will be noted in the addendum.

Required Course Materials

Textbook: Introduction to General, Organic, and Biochemistry - 10th ed. Hein, et al. ISBN-10: 0-470-59880-8, ISBN-13: 978-0-470-59880-1

Lab Book: Chemistry 102 Lab Book (available in the bookstore only)

HW Packet: Chemistry 102 Homework Packet (available in the bookstore only)

Scientific Calculator

Access to www.chemhaven.org/che102

Course Competencies

NATURAL & PHYSICAL SCIENCES (N&PS) CONTENT CRITERIA – GT-SC1

1. The lecture content of a GT Pathways science course (GT-SC1)
 - a. Develop foundational knowledge in specific field(s) of science.
 - b. Develop an understanding of the nature and process of science.
 - c. Demonstrate the ability to use scientific methodologies.
 - d. Examine quantitative approaches to study natural phenomena.
2. The laboratory (either a combined lecture and laboratory, or a separate laboratory tied to a Science lecture course) content of a GT Pathways science course (GT-SC1)
 - a. Perform hands-on activities with demonstration and simulation components playing a secondary role.
 - b. Engage in inquiry-based activities.
 - c. Demonstrate the ability to use the scientific method.
 - d. Obtain and interpret data, and communicate the results of inquiry.
 - e. Demonstrate proper technique and safe practices.

COMPETENCIES & STUDENT LEARNING OUTCOMES FOR GT-SC1

Inquiry & Analysis:

4. Select or Develop a Design Process
 - a. Select or develop elements of the methodology or theoretical framework to solve problems in a given discipline.
5. Analyze and Interpret Evidence
 - a. Examine evidence to identify patterns, differences, similarities, limitations, and/or implications related to the focus.
 - b. Utilize multiple representations to interpret the data.
6. Draw Conclusions
 - a. State a conclusion based on findings.

Quantitative Literacy:

1. Interpret Information
 - a. Explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).
2. Represent Information
 - a. Convert information into and between various mathematical forms (e.g., equations, graphs, diagrams, tables, words).

Course Competencies

1. Use hybridization to determine what kind of geometry exists in the structure of a compound.
2. Recognize what functional group(s) is/are present and decipher what possible chemical activity a compound can undergo.
3. Show how polarity can influence a chemical reaction and intermolecular interaction.
4. Use the functional group chemistry of organic compounds to determine the chemical activity of biochemical compounds.
5. Determine outcomes for a biosynthetic pathway given conditions such as pH, concentration, temperature, enzyme activity.
6. Write or give orally the correct linear process of protein synthesis, including the vocabulary associated with that process.
7. Write or orally explain the metabolic pathways, including the vocabulary associated with that process.
8. Determine the correct name of the compound given an organic or biochemical structure.
9. Draw the correct structure on paper given a name of an organic or biochemical compound or structure.
10. Read, analyze, and apply to new situations, written material related to the study of chemistry.
11. Demonstrate the ability to select and apply contemporary forms of technology to solve problems or compile information in the study of chemistry.

Topical Outline

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| <ul style="list-style-type: none">I. Introduction<ul style="list-style-type: none">a. Hybridizationb. StructureII. Functional Groups<ul style="list-style-type: none">a. Hydrocarbons<ul style="list-style-type: none">i. Saturated<ul style="list-style-type: none">1. Nomenclature2. Physical and Chemical Propertiesii. Unsaturated<ul style="list-style-type: none">1. Nomenclature2. Physical and Chemical Propertiesiii. Aromatics<ul style="list-style-type: none">1. Nomenclature2. Physical and Chemical Propertiesiv. With Halides<ul style="list-style-type: none">1. Nomenclature2. Physical and Chemical Propertiesb. Oxygen Containing Compounds<ul style="list-style-type: none">i. Alcohols<ul style="list-style-type: none">1. Nomenclature2. Physical and Chemical Propertiesii. Phenols<ul style="list-style-type: none">1. Nomenclature2. Physical and Chemical Propertiesiii. Ethers<ul style="list-style-type: none">1. Nomenclature2. Physical and Chemical Propertiesiv. Aldehydes and Ketones<ul style="list-style-type: none">1. Nomenclature2. Physical and Chemical Propertiesv. Esters and Carboxylic Acids<ul style="list-style-type: none">1. Nomenclature2. Physical and Chemical Propertiesc. Nitrogen Containing Compounds<ul style="list-style-type: none">i. Amines<ul style="list-style-type: none">1. Nomenclature2. Physical and Chemical Propertiesii. Amides<ul style="list-style-type: none">1. Nomenclature2. Physical and Chemical Properties | <ul style="list-style-type: none">III. Biochemical Compounds<ul style="list-style-type: none">a. Carbohydrates<ul style="list-style-type: none">i. Nomenclatureii. Physical and Chemical Propertiesiii. Structureiv. Metabolismb. Lipids<ul style="list-style-type: none">i. Nomenclatureii. Physical and Chemical Propertiesiii. Structureiv. Metabolismc. Amino Acids and Proteins<ul style="list-style-type: none">i. Nomenclatureii. Physical and Chemical Propertiesiii. Structureiv. Metabolismd. Enzymes<ul style="list-style-type: none">i. Nomenclatureii. Chemical Propertiesiii. Uses Nucleice. Acids<ul style="list-style-type: none">i. Nomenclatureii. Chemical Propertiesiii. Protein synthesis |
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Course Policies and Procedures:

Expectations for satisfactory student performance

- Students are expected to be on time and attend all classes and laboratory sessions.
- Students are expected to read related text, and other assigned reading, prior to the class session in which it will be discussed.
- Students are expected to read laboratory exercises and be prepared to begin laboratory procedures upon entering the lab session.
- Students are expected to spend approximately 2 hours, for every hour spent in class, reviewing, reading, answering all chapter questions, and studying. This serves to keep the student up to date with the material and does not include time needed to “cram” for exams.

Attendance

- Excused absences include athletic events, field trips, illness with doctors note (if you are not sick enough to go to the doctor, you are not sick enough to be excused from class), and family emergency (death etc.). To be excused the student must ensure the instructor is notified in writing and in advance.
- Laboratory exercises are essential “hands-on” experiences and cannot be made up. Absence from 3 or more laboratory sessions may result in a grade of **F** in the lab, and will result in failure of the class.

Course content and assessment

- Class will consist of lecture, demonstrations, movies, student presentations, and discussions. Although the text is generally followed, the student is responsible for all material covered in class and any related or assigned reading.

Homework

- Homework assignments will be given for each chapter. The assignments will be handed out in class and posted on the website.
- At the discretion of the instructor homework may be turned in one class day late for full credit. (For example if the assignment is due Mon, then you may turn it in any time up until Tue at 8:00 am for full credit) After that time, the assignment will be worth **ZERO** points, however, on request it will be graded so that you may see if you did the problems correctly.
- Not showing up, oversleeping, excused absences etc. does not negate the due date/time.

Laboratory

- Laboratory sessions will each consist of brief lecture, activities, and review questions. Students are graded on their preparation, performance, and participation.
- Lab assignments are due one lab session after the lab is finished.
- Labs handed in late will receive a 20% late penalty per day.
- Labs turned in after the graded lab is returned are worth **ZERO** points.

Exams

- Exam dates will be determined at least 1 week in advance.
- Missed tests can be made up for full credit only for excused absences and when the instructor is notified in advance and in writing. Missed exams must be made up the first day the student returns to class.
- Without prior arrangements, 25% will be deducted off your test grade per day late.
- Save your tests! There will be a two-part final exam, which will count as two tests. The chapter tests will help you prepare for your final.

Evaluation/Grading Criteria

- One final grade is given for the combined performance in class and laboratory. Your grade will be calculated as either:
 - 60% Exams, 20% Homework, 20% Lab or
 - 80% Exams, 20% Lab

-The grade given will be the better of the two grades determined above.

-Current Grade can be accessed at <https://cncc.desire2learn.com/> (D2L)

-Grades are based on the standard scale:

Percent	Grade
90%	A
80%	B
70%	C
60%	D
59% or less	F

Cheating

Students are expected to conduct themselves in an honest, scholarly manner in accordance with college policies. Turning in work that is not 100% original and belonging to the student will result in a ZERO (F) for that assignment. Furthermore, the student will be reported to the Dean of Instruction for further disciplinary sanctions in accordance with CNCC policies. Providing materials that are used for copying is considered cheating and will be treated as above.

Cell Phone Policy

Student cell phones must be turned off while in the class. A ringing, vibrating or otherwise distracting cell phone not only distracts the owner but others around as well. The penalty for a phone ringing, answering, or any other use is a zero on that day's homework, lab or exam.

Calendar/ Schedule:

Chapter	Chapter Name	Pages	Notes
19	Organic Chemistry: Saturated Hydrocarbons	496-535	
20	Unsaturated Hydrocarbons	537-577	Exam 19-20
22	Alcohols, Ethers, Phenols, and Thiols	598-634	
23	Aldehydes and Ketones	635-662	Exam 22-23
24	Carboxylic Acids and Esters	668-704	
25	Amines and Amides	705-732	Exam 24-25
26	Stereoisomerism	737-760	
27	Carbohydrates	762-801	
28	Lipids	802-827	Exam 26-28
29	Amino Acids, Polypeptides, and Proteins	832-873	
30	Enzymes	874-894	
31	Nucleic Acids and Heredity	894-930	Exam 29-31
33	Bioenergetics	964-983	
34	Carbohydrate Metabolism	984-1007	
35	Metabolism of Lipids and Proteins	1008-1032	Exam 33-35

Standard College Policies

Attendance Policy

Students should explain the reasons for absence to their instructors. The student is responsible for making up work missed due to any absence, including those involving College-sponsored athletic, academic, or recreational trips. **Students will not be penalized for absences due to College-sponsored activities; however, instructors reserve the right to assign relevant, alternative work for missed class time due to such an activity.** Absences for extenuating circumstances or activities outside of a College-sponsored activity may be excused by the Dean of Instruction or the Vice-President of Instruction and Student Affairs with notification to the faculty.

It is ultimately the student's responsibility to officially drop or withdraw from a course through the Admissions and Records Office. Failure to do so may impact a student's grade, official transcript, and College financial account.

Academic Integrity Policy

Colorado Northwestern Community College considers academic dishonesty, which includes cheating and plagiarism, to be an extremely serious offense, and will be dealt with by appropriate disciplinary action up to and including suspension. The word "cheating" refers to the acts of giving, utilizing, or receiving un-permitted aid during examinations or in the preparation of reports or any other class work that the instructor will use as a basis for evaluation. The word "plagiarism" refers to the use of another person's work without giving proper credit to that person. When paraphrasing another person's work (i.e., borrowing but rewording that person's facts, opinions, or ideas), a student must give proper credit through the use of appropriate documentation. When copying verbatim another person's work (i.e., words, phrases, sentences, or entire passages), a student must credit that person through the use of quotation marks and appropriate documentation.

Anti-Discrimination Policy

Colorado Northwestern Community College prohibits all forms of discrimination and harassment including those that violate federal and state law, or the State Board for Community Colleges and Occupational Education Board Policies 3-120 and 4-120. The College does not discriminate on the basis of sex/gender, race, color, age, creed, national or ethnic origin, physical or mental disability, veteran status, pregnancy status, religion, genetic information, gender identity, or sexual orientation in its employment practices or educational programs and activities. Colorado Northwestern Community College will take appropriate steps to ensure that the lack of English language skills will not be a barrier to admission and participation in vocational education programs.

Americans with Disabilities Act

Any student, who believes he/she has a disability, as outlined in the Americans with Disabilities Act, and would like reasonable accommodations, should set up an appointment to discuss this with the ADA Coordinator on his/her respective campus. Faculty is not allowed to provide accommodations without proper notification from the ADA Coordinator.

Early Alert

All instructors participate in CNCC's Early Alert system. Every three weeks, your grades will be submitted to members of the Student Success Team. In addition, your instructor may speak to you directly about his/her concerns regarding a number of possible issues, including absence, late or missing submissions, poor or high performance on assessments, etc. The electronic Early Alert system is designed to supplement this communication and allow instructors to request additional early intervention for students from a CNCC advisor or specialist. The hope is to provide you the support you need to be successful and to share information about additional learning opportunities the college offers. Alerts can be sent throughout the semester, can be in response to positive or negative performance, and are designed to link you with support opportunities here at CNCC, such as tutoring services, honors programs, financial aid resources, etc. If you are contacted by a CNCC advisor, please speak with him/her and your instructor to find out more about the nature of the alert and the supports and services your instructor has recommended.

Statement Regarding Mandatory Reporting

Our College is committed to preserving a safe and welcoming educational environment for all students. As part of this effort, I have an obligation to report certain issues relating to the health and safety of campus community members. I must report to the appropriate College officials any allegation of discrimination or harassment. Sexual misconduct, which includes sexual harassment, non-consensual sexual contact, non-consensual sexual intercourse, and sexual exploitation, is considered a form of discrimination. In addition to reporting all discrimination and harassment claims, I must report all allegations of dating violence or domestic violence, child abuse or neglect, and/or credible threats of harm to yourself or others. Such reports may trigger contact from a College official who will want to talk with you about the incident that you have shared. In almost all cases, it will be your decision whether you wish to speak with that individual.

If you would like more information, you may reach the Title IX Coordinator: 970-824-1102 or the EO Coordinator at 970-675-3335.

Reports to law enforcement can be made at 970-675-8467 in Rangely or 970-824-1111 in Craig.

If you would like a confidential resource, in Rangely, please contact Counseling and Advocacy at 970-629-5729 or 670-629-0709. In Craig contact Advocates Crisis Support Services at 970-824-9709 or 970-827-2400.

Further information may be found on the College web site: [Sexual misconduct title ix](#).