

**COPPER MOUNTAIN COLLEGE**

**Human Physiology (BI-023) Course**

**Syllabus Spring 2020- Cynthia Sanchez M.S.**

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**Course Description:** This course surveys normal and many abnormal human functions involving integumentary, skeletal, muscular, cardiovascular, respiratory, digestive, urogenital, sensory, nervous and endocrine systems

**Note:** This course is a required prerequisite for many Health Science majors or it may be used to satisfy a General Education Life Science requirement. Pre-medical, pre-dentistry, and pre-veterinary students are advised to take BI 001A, 001B and 001C series rather than BI 022 and BI 023.

**Prerequisite:** CH 003 or CH004, BI 022. CSU, UC Associate Degree Applicable.

# Course Information

# Course Dates:                          January 24 to May 20, 2020

# Days / Times / Location:  M 12:00p – 3:05p Rm 110

# W 12:00p – 3:05p Rm 110

# Required online component of ~ 1 hour per week through Canvas!

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# Instructor Information

# Instructor:                                Cynthia Sanchez, M.S.

# Instructor Phone:                    760‐366‐3791, Ext. 0259

**Email:** [**csanchez@cmccd.edu**](mailto:csanchez@cmccd.edu)

**Office Hours:                           T Th 5:30pm - 6:30pm Rm 113**

**M W 3:05pm – 4:05pm Rm 206**

**Virtual Office Hours:           F 12:00pm – 1:15pm via email, skype or chat**

 All communications with instructor must be sent from student CMC email accounts, (@student.cmccd.edu) due to Federal Privacy Laws (FERPA).

**Required Course Materials:**

**1) Textbook: Human Physiology: An integrated approach (8**th edition) 2018, by Silverthorn.  ISBN 9780134704203.  A less expensive paperback edition is available online. **A link to a FREE PDF version of this text will be available on Canvas!**  The access code to Mastering Biology is NOT included!

**Important!** Attendance is mandatory. You must be in attendance on the first day of class in order to not be dropped from the class. In addition, absences that exceed 12% of total class/lab time will result in being dropped from the course. Your signature is required on the Attendance Sheet at each class/lab session. Arriving late or leaving early may result in being counted as an absence for that day, at instructor’s discretion.

**Computer Requirements**: This course has an online component! A weekly assignment and a weekly quiz will be given through Canvas! You will need a computer with an internet connection and access to Canvas in order to complete this online component!

**Grading:** Final course grades are based upon the percentage of total points earned by the student during the semester, after dropping your lowest online quiz and your lowest lecture exam scores!

**90-100 %          = A**

**80-89 %            = B**

**70-79 %            = C**

**60-69 %            = D**

**Below 60%       = F**

**15 online quizzes (10 points each / lowest score dropped)                                                       = 140**

**5 Lecture Exams (100 points each / lowest score dropped)                                              = 400**

**14 Lab Reports (10 points each)                                                                                              =  140**

**1 Oral Presentation of History, Questions & Answers from 6 clinical cases              =   20**

**1 Final Laboratory Exam                                                                                                                = 100**

**Total Possible Points                                                                                                                      = 800**

**Due Dates for Assignments:** All assignments (including online assignments) must be submitted before the due dates listed in this syllabus.

**Testing Policy:** There will be NO make-up exams or online quizzes! Every student is allowed to drop the lowest exam score and the lowest quiz score. A grade of 0 will be given for any missed exam, quiz or assignment. The final lecture exam and the final lab exam MUST be taken in order to complete this course! Scoring errors must be brought to the attention of the instructor within 7 days.

**Clinical Cases**: These are called “Running Problems” in the textbook. You will discuss the cases in the chapters from the reading assignments (see course schedule) in the lab with your group and write a short summary of the problem and propose solutions. Your group will do a total of 19 cases (1 for each chapter 1 through 19). Cases are due the following lab period. Each student is required to complete the assigned clinical cases and submit them by the due date in order to receive credit. Students are required orally present 6 Questions & Answers from cases with their group on 4/29 during lab.

**Laboratory Activities:** Laboratory activities include experiments and group discussions of clinical cases. **Lab reports and case reports must be submitted to the instructor by the due date in order to receive credit.** The laboratory activities are subject to change, as labs and clinical cases will be given when most appropriate to the current lecture topic.

**Student Responsibilities:** You are required to check the Announcements and Discussion Board at the Canvas website ([http://cmcc.Canvas.com/](http://cmcc.blackboard.com/)) a minimum of two (2) times per week for messages from the instructor. All students will be held responsible for knowing the contents of the messages. Students must meet all posted deadlines for assignments.

**Contacting Instructor**: **All communications with instructor must be sent from student CMC email accounts**, **(@student.cmccd.edu) due to Federal Privacy Laws (FERPA). If you send email from another address the reply will be “Please use the CMC email account.”** Email is for private communication between you and the instructor.

**TENTATIVE COURSE SCHEDULE**

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| **Dates** | **Lecture TOPICS & READINGS**  MONDAYS | **Lab Activity**Wednesdays | **Assignments & DUE DATES** |
| **M 1/27**  **W 1/29** | **Ch 1 – Intro to Physiology** | **Orientation: Lab Safety Quiz**  **Ch 2 – Molecular Interactions** | **Online Quiz 1 – Due 1/31** |
| **M 2/03**  **W 2/05** | **Ch 3 – Compartments: Cells and Tissues**  **Ch 4 – Energy and Cellular Metabolism** | **Surface/Volume Relations** | **Online Quiz 2 – Due 2/07**  **Lab Report 1: Surface / Volume Relations – Due 2/12** |
| **M 2/10**  **W 2/12** | **Ch 5 – Membrane Dynamics**  **Ch 6 – Integration and Homeostasis** | **Osmosis & Diffusion Lab** | **Online Quiz 3 – Due 2/14**  **Lab Report 2: Osmosis & Diffusion – Due 2/19** |
| **M 2/17**  **W 2/19** | **HOLIDAY – No class meeting** | **Vernier 4: Vascularity & Skin Temperature Recovery** | [**Online**](http://session.masteringbiology.com/myct/assignment?assignmentID=1119860) **Quiz 4 – Due 2/21**  **Lab Report 4: Vascularity & Skin Temperature Recovery – Due 2/26** |
| **M 2/24**  **W 2/26** | **Lecture Exam 1: Ch 1–6**  **Ch 7 – Endocrine System** | **Vernier 5: Heart Rate and Baroreceptors** | [**Online**](http://session.masteringbiology.com/myct/assignment?assignmentID=1119860) **Quiz 5 – Due 2/28**  **Lab Report 5: Heart Rate and Baroreceptors – Due 3/04** |
| **M 3/02**  **W 3/04** | **Ch 8 – Neuron Properties**  **Ch 9 – Central Nervous System** | **Electroencephalography (EEG)** | [**Online**](http://session.masteringbiology.com/myct/assignment?assignmentID=1119860) **Quiz 6 – Due 3/06**  **Lab Report 6 - Electroencephalography (EEG) Due 3/11** |
| **M 3/09**  **W 3/11** | **Ch 10 – Sensory Physiology**  **Ch 11 – Motor Control** | **Vernier 14b: Neuromuscular Reflexes** | [**Online**](http://session.masteringbiology.com/myct/assignment?assignmentID=1119860) **Quiz 7 – Due 3/13**  **Lab Report 7: Neuromuscular Reflexes – Due 3/18** |
| **M 3/16**  **W 3/18** | **Lecture Exam 2: Ch 7-11**  **Ch 12 - Muscles** | **Vernier 18: Electromyography (EMG)** | [**Online**](http://session.masteringbiology.com/myct/assignment?assignmentID=1119860) **Quiz 8 – Due 3/20**  **Lab Report 8: Electromyography (EMG)  – Due 4/01** |
| **M 3/23**  **W 3/25** | **SPRING BREAK**  **No class meeting** | **SPRING BREAK**  **No Lab Meeting** | **none** |
| **M 3/30**  **W 4/01** | **Ch 13 – Control of Body Movement**  **Ch 14 – Cardiovascular Physiology** | **Vernier 12: Electrocardiography (ECG)** | [**Online**](http://session.masteringbiology.com/myct/assignment?assignmentID=1119860) **Quiz 9 – Due 4/03**  **Lab Report 9: Electrocardiography (ECG) – Due 4/08** |
| **M 4/06**  **W 4/08** | **Ch 15 – Blood Flow & Blood Pressure**  **Ch 16 - Blood** | **Vernier 8: Blood Pressure & Exercise** | [**Online**](http://session.masteringbiology.com/myct/assignment?assignmentID=1119860) **Quiz 10 – Due 4/10**  **Lab Report 10: Blood Pressure & Exercise – Due 4/15** |
| **M 4/13**  **W 4/15** | **Lecture Exam 3: Ch 13-16**  **Ch 17 – Mechanics of Breathing** | **Vernier 19: Lung Spirometry** | [**Online**](http://session.masteringbiology.com/myct/assignment?assignmentID=1119860) **Quiz 11 – Due 4/17**  **Lab Report 11: Lung Spirometry – Due 4/22** |
| **M 4/20**  **W 4/22** | **Ch 18 – Gas Exchange and Transport**  **Ch 19 – The Kidneys** | **Kidney Function Urinalysis** | [**Online**](http://session.masteringbiology.com/myct/assignment?assignmentID=1119860) **Quiz 12 – Due 4/24**  **Lab Report 12: Kidney Function Urinalysis – Due 4/29** |
| **M 4/27**  **W 4/29** | **Ch 20 – Fluid and Electrolyte Balance**  **Ch 21 – The Digestive System** | **Clinical Cases Oral Presentations** | [**Online**](http://session.masteringbiology.com/myct/assignment?assignmentID=1119860) **Quiz 13 – Due 5/01** |
| **M 5/04**  **W 5/06** | **Lecture Exam 4: Ch 17-21**  **Ch 22-23 Metabolism and Growth** | **Vernier 22: Exercise and Aerobic Metabolism** | [**Online**](http://session.masteringbiology.com/myct/assignment?assignmentID=1119860) **Quiz 14 – Due 5/08**  **Lab Report 13: Exercise and Aerobic Metabolism – Due 5/13** |
| **M 5/11**  **W 5/13** | **Ch 24 – Immune System**  **Ch 25 – Exercise**  **Ch 26 - Reproduction** | **Simulated Blood Typing** | [**Online**](http://session.masteringbiology.com/myct/assignment?assignmentID=1119860) **Quiz 15 – Due 5/08**  **Lab Report 14: Simulated Blood Typing– Due 5/20** |
| **M 5/18**  **W 5/20** | **Lecture Exam 5: Ch 22-26** | **Lab Final Exam** |  |

This syllabus is subject to change without notice but students will be informed of all changes.

**Important Dates**

# January 24 - Classes begin

**February 04 - Last day to add a full semester class**

**February 04 - Last day to drop with refund**

**February 14-17 Holiday, no classes, college closed**

**February 19 - Census**

**February 19 - Last day to drop and avoid transcript grade record**

**March 23-28 - Spring Break, no classes** 6

**April 23 - Last day to withdraw with a grade of “W”**

**MILITARY/VETERAN SUPPORT STATEMENT: VETERANS** Veterans and active duty military personnel with special circumstances (e.g., upcoming deployments, drill requirements, disabilities) are welcome and encouraged to communicate these, in advance if possible, to the instructor

.**ACCESS: Disabled Students Programs and Services:** Students with disabilities, whether physical, learning or psychological, who believe that they may need class accommodations are encouraged to contact CMC’s ACCESS Program to ensure accommodations are implemented in a timely fashion. Please meet with the ACCESS staff to verify your eligibility for any classroom accommodations and for academic assistance related to your disability. ACCESS is located in the Student Services Building, in Phase III of the CMC campus.

**Equal Opportunity Statement:** CMC is committed to Equal Employment Opportunity for all persons and to provide educational and employment opportunities free from discrimination on the basis of ethnic group identification, national origin, religion, age, veteran status, sex, race, color, ancestry, sexual orientation, or physical or mental disabilities, and other physical or verbal conduct or communication constituting sexual harassment.

**Academic Honesty:** Students will be held accountable for the Standards for Academic Honesty available at the Copper Mountain College website. Sharing quiz/exam/homework answers with another student is cheating. Presenting another person’s work or writing as your own is plagiarism.

**Information About Grades:** Final course grades are available at <http://www.cmccd.edu/> after the course end date. Click on the Students menu, or go to <http://www.cmccd.edu/Access_Transcripts> Grades.

**Suggestions for Student Success:** Studying over multiple sessions each week improves your performance on assignments. Also see the videos, animations, audio E-tutor modules and other self-study materials in the **Study Area** at the website MasteringBiology.com.

**Institutional Student Learning Outcomes Addressed by Elements of Biology BI 004** These general education outcomes are assessed throughout the course using various projects, case studies of current events, assignments, quizzes, and test questions.

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| **Area** | | | **Outcomes** |
|  | Upon completing the Human Physiology Course the student will be able to: | | |
| **Critical Thinking Skills** | | --Apply the metric system using standard equipment. Systematically collect, organize, and present appropriate data in graphs, tables, or figures. Assess the validity of the data and interpret it correctly.  --Evaluate and analyze simulated and real patients by developing a differential diagnosis, identifying key factors, and determining a treatment strategy. | |
| **Ethics** | | --Integrate knowledge and make informed judgments based upon sound assessment of data balanced with concern for individuals. | |
| **Information**  **Competency** | | --Access and evaluate biological data from a variety of sources including the Internet. Use technology to email, produce documents and create graphs and tables for reports. | |
| **Communication**  **Skills** | | --Exhibit oral and written communication competency through case studies, projects, and lab presentations. | |
| **Personal Development** | | --Assess and describe their own preferred learning style and list steps to effectively improve their learning.  --Effectively work in teams, managing time, tasks and personality differences; sharing results and analyses in order to arrive at a final collaborative product. | |
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| **Domain** | **Specific BI 004 Course Outcomes** | **Final Assessment Method** |
| Knowledge/ Cognitive | Following Completion of the Elements of Biology Course (BI 004) students will be able to: |  |
| Scientific Method | Develop methods of scientific inquiry, observation and measurement | Multiple choice exam questions Current Event Case Study |
| Biochemistry | Relate the basic principles of chemistry to biology at the cellular, organismal, and ecosystem levels. | Multiple choice exam questions Current Event Case Study |
| Nomenclature | Learn the language of biology and correctly use terms in written communication. | Multiple choice exam questions Current Event Case Study |
| Classification | Describe characteristics that define life and discuss biological organization extending from molecules to ecosystems. | Multiple choice exam questions Current Event Case Study |
| Structure and Function | Explain how structure correlates with function at all levels of hierarchical organization. | Multiple choice exam questions Current Event Case Study |
| Unity and Diversity | Describe the unity and diversity of all organisms within the Kingdoms and Domains of classification. | Multiple choice exam questions Current Event Case Study |
| Systems  Theory | Analyze the various mechanisms by which organisms maintain  homeostasis. | Multiple choice exam questions  Current Event Case Study |
| Cell Theory | Compare and contrast prokaryotic and eukaryotic cells with regard to structure and function, illustrate cell membrane function, and inspect the acquisition and use of energy in metabolic processes. | Comparative table |
| Cell Division | Diagram mitosis, meiosis, and the flow of information from genes to protein. | Multiple choice exam questions Current event case studies |
| Ecological Interactions | Evaluate the interactions between organisms and the interactions organisms have with their environment. | Current event case studies Multiple choice exam questions  Flowchart Diagrams |
| Ecosystem Function | Evaluate and diagram the energetic relationships between producers, consumers and decomposers in function of different types of ecosystems. | Flow Chart  Multiple choice exam questions |
| Evolution | Compare the mechanisms of evolution, and analyze the evidence in support of evolutionary theory. | Multiple choice exam questions Current Event Case Study |
| Science, Technology and Society | Relate the interdependent nature of science to technology, and evaluate the role of society in shaping the application of scientific knowledge. | Multiple choice exam questions Current Event Case Study |
| Metabolism | Describe metabolic pathways in general terms and specifically evaluate the implications for food production and human disease. | Labeled diagram Flow chart |
| Genetics | Demonstrate basic genetic principles; analyze consequences of  mutation and genetic recombination; evaluate the significance of DNA technology. | Multiple choice exam questions Current Event Case Study |
| Immunity | Articulate and diagram the role of the immune system in  maintaining homeostasis, challenging infections, and fighting cancer. | Flow chart, Current Event Case Reports, Short Essay Questions |
| Skills | Following Completion of the Elements of Biology (BI 004) students will be able to: |  |
| Scientific Method Application | Apply the scientific method by stating a question; researching the topic; determining appropriate tests; performing tests; collecting, analyzing, and presenting data; and finally proposing new questions about the topic. | Current Event Case Reports, Short Essay Questions |
| Safety Skills | Understand the practical applications of biology to relevant situations in the student’s lives and homes. | Multiple choice exam questions; Current Event Reports & Essays |
| Attitudes and behavior | Following Completion of the Elements of Biology Course (BI 004) students will be able to: |  |
| Information Competency | Retrieve, evaluate, and use contemporary biologic information. | Current Event Reports |

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| **BI 004 Elements of Biology** | |
| **Course Student Learning Objectives** | **Assessment Methodology** |
| SLO1-Students will explain the relationship of structure and function when given a specific structure of an organism. | SLO1- Lecture Exams, Quizzes, Homework Assignments |
| SLO2-Students will analyze and explain biological phenomena using the scientific method. | SLO2- Lecture Exams, Quizzes, Homework Assignments |
| SLO3-Students will demonstrate understanding of the evolutionary basis of life. | SLO3- Lecture Exams, Quizzes, Homework Assignments |

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