



Course Syllabus
Medical Interventions Fall 2022
Instructor: Katie Weir

Course Description:

In the Medical Interventions course, students will investigate the variety of interventions involved in the prevention, diagnosis and treatment of disease as they follow the lives of a fictitious family. A “How-To” manual for maintaining overall health and homeostasis in the body, the course will explore how to prevent and fight infection, how to screen and evaluate the code in our DNA, how to prevent, diagnose and treat cancer, and how to prevail when the organs of the body begin to fail. Through these scenarios, students will be exposed to the wide range of interventions related to Immunology, Surgery, Genetics, Pharmacology, Medical Devices, and Diagnostics.

Course Objectives:

Students will:

1) Students will utilize concepts learned in the previous biomedical courses as they seek medical interventions for the family case scenarios. 2) Students will research various types of medical interventions from simple diagnostic tests to treatment of complex diseases and disorders. 3) Students will explore the role of lifestyle choices and preventive measures as well as scientific thinking and engineering design as they examine all medical interventions in healthcare.

Classroom Rules and Expectations:

1. **BE ON TIME.** Tardy means that you are not **in the room** and getting seated when the bell rings. If you are not in the room when the tardy bell rings, you will need to go to the attendance office for a tardy slip. JCHS policy governs the consequences for tardiness.
2. **BE RESPECTFUL:** Practice courtesy and mutual respect. Treat others as you would like to be treated. The classroom and laboratory is to be regarded as a safe and supportive learning environment.
3. **BE YOUR OWN PERSON:** Many assignments are to be completed by lab partners or within a group. However, **ALL students are expected to contribute and/or work is to be done individually.** Plagiarizing/copying assignments from lab partners is not acceptable and can result in a zero on the assignment.
4. **BE PREPARED:** Come prepared for class—mentally and with proper materials.
5. **BE WHERE YOUR FEET ARE:** Anything distracting to you, your classmates, or your teacher should be put away during class (phone, food, candy, drinks, etc.) **Cell phones should always be on silent and put away unless you have permission to use them for class assignments. The use of cell phones during tests/quizzes, lecture, and group work can result in a lower grade or “0” on the assignment. Please practice proper cell phone etiquette! If your cell phone becomes a problem, they will go into a “cell phone home” where you can focus on your assignment.**

Please try to take care of any personal business before or after class. I do not want you to miss valuable class time!

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CTSO: Students are encouraged to participate in HOSA. Competitive events that relate to a specific topic discussed in class will be highlighted.

Culminating Product: Basis of knowledge required in preparation for Medical Interventions (MI).

Career Readiness Indicator: Students who are age 15 and older and meet the American Red Cross requirements for Lifeguarding are eligible to receive this credential paid for by the Alabama State Department of Education. See Teacher for further details.

*Choosing not to follow these classroom guidelines will result in the following: warning, student conference, parent notification/conference, or office referral.

Accommodations: Requests for accommodations for this course or any school event are welcomed from students and parents.

Concerning Laptop Utilization: Student laptops should not be hard-wired to the network or have print capabilities. 2. Use of discs, flash drives, jump drives, or other USB devices will not be allowed on Madison City computers. 3. Neither the teacher, nor the school is responsible for broken, stolen, or lost laptops. 4. Laptops and other electronic devices will be used at the individual discretion of the teacher.

Turnitin Notice: The majority of writing assignments in this course will be submitted to Turnitin via the Schoology learning platform. The primary focus of this software is to help students become better writers and scholars. Turnitin generates a report on the originality of student writing by comparing it with a database of periodicals, books, online content, student papers, and other published work. This program will help students discern when they are using sources fairly, citing properly, and paraphrasing effectively - skills essential to all academic work. Students will have the opportunity to review their Turnitin originality report and will have the opportunity to make revisions before submitting their work for grading. Once their work is submitted, teachers have the opportunity to view the student's originality report and grade accordingly.

Grading Policy:

Test/project grades will account for 70% of the 9-weeks grade, with the remaining 30% being determined by quiz/daily grades. Some quizzes will count as test grades. The grading scale is as follows: A (90-100%), B (80-89), C (70-79), D (65-69), and F (below 65). Grades will be a reflection of mastery of the standards. Make sure all absences are excused as class work can be made up and graded for excused absences only. The final exam counts for 20% of the final grade. *There will be several projects assigned. Students should be prepared to work in the home with one to several students. All safety rules learned in class should be applied at home. Be aware that some of the materials students use at home may damage household contents. Students should be thoughtful of their working environment.*

Make-Up Work Policy:

Attendance is crucial for success in HBS as most of the work will be done in class and many of the activities are difficult to make up.

It is the **student's** responsibility to collect assignments that are missed during an absence from Schoology, another student, or by contacting the teacher. Students have the same number of days they were absent to make up an assignment/activity. Note: Certain lab activities cannot be made up due to logistical issues, and students will be given a possible alternate assignment to replace the lab grade.

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Tests & quizzes that are missed will be completed outside of instructional/activity time. Please talk to me to set up a time to make up your assignment during Refuel. It is the **student's** responsibility to set up a time and make up your test or quiz.

Late work will be accepted with the penalty of 20% deducted per day late for the maximum of 5 school days, but students must discuss turning in late work. **Late work will not be accepted after 1 week after the due date.**

Please monitor the Schoology calendar and classroom board for deadlines. Enable notifications on Schoology to get reminders!

Unexcused Absences

It is very important that you get all absences excused. If you do not, the computer will not allow me to enter a grade above a zero for any given assignment on the day you missed. It is **your** responsibility to take care of this and to let me know when the excuse has been updated. I do not receive notifications that absences have been excused.

Course Materials:

Per Individual:

One 1 ½-2 inch three ring binder*
Loose leaf paper
Roll of paper towels
Colored pencils
Scientific Calculator

Black/Blue ink pens & Pencils
Graph paper
Dividers
Laptop (school issued or personal)

Wishlist Items (but not required):

Pack of copy paper
Non-latex gloves
Sanitizing wipes
Tissues
Sanitizing aerosol spray

Hand sanitizer
Command poster strips
Dishwashing liquid
Handsoap

Texts/Required Readings:

The course is online and the majority of the materials that accompany this class will be accessible online.



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18 - WEEK PLAN*	
WEEK 1	Introduction Unit One: How to Fight Infection (22.5 Days) Lesson 1.1: The Mystery Infection (8.5 Days) Activity 1.1.1 - Medical Interventions Inventory Activity 1.1.2 - Investigating an Outbreak Problem 1.1.3 - Using DNA to Identify Pathogens
WEEK 2	Activity 1.1.4 - What's the Concentration? (Optional , additional 1.5 days) Activity 1.1.5 – ELISA Activity 1.1.6 - Final Diagnosis
WEEK 3	Lesson 1.2: Antibiotic Treatment (4.5 Days) Activity 1.2.1 - Antibiotic Therapy Activity 1.2.2 – Which Antibiotic is the Best Choice? Project 1.2.3 - Attack of the Superbugs Activity 1.2.4 - When Antibiotics Fail
WEEK 4	Lesson 1.3: The Aftermath: Hearing Loss (5 Days) Activity 1.3.1 - Good Vibrations Activity 1.3.2 - Can You Hear Me Now? Activity 1.3.3 - Cochlear Implant Debate
WEEK 5	Lesson 1.4: Vaccination (4.5 Days) Activity 1.4.1 - Disease Prevention Through Vaccination Activity 1.4.2 - Vaccine Development Activity 1.4.3 - Life of An Epidemiologist
WEEK 6	Unit 2: How to Screen What Is In Your Genes (11.5 Days) Lesson 2.1: Genetic Testing and Screening (8 Days) Activity 2.1.1 - Chronicles of a Genetic Counselor Activity 2.1.2 - Copy Your Genes Activity 2.1.3 - Test Your Own Genes
WEEK 7	Activity 2.1.5 - Maternal and Child Health Lesson 2.2: Our Genetic Future (3.5 Days) Activity 2.2.1 - Gene Therapy Activity 2.2.2 - Reproductive Technology
WEEK 8	Unit 3: How to Conquer Cancer (29 Days)

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	<p>Lesson 3.1: Detecting Cancer (7.5 Days)</p> <p>Activity 3.1.1 - Who is Affected by Cancer? Activity 3.1.2 - Diagnostic Imaging Career Activity Activity 3.1.3 - When Cells Lose Control Activity 3.1.4 - DNA Microarray</p>
WEEK 9	<p>Activity 3.1.5 - Unlocking the Secrets in Our Genes</p> <p>Lesson 3.2: Reducing Cancer Risk (8.5 Days)</p> <p>Activity 3.2.1 - Am I at Risk? Project 3.2.2 - Skin Cancer Prevention Activity 3.2.3 - Breast Cancer Screening & Prevention</p>
WEEK 10	<p>Activity 3.2.4 - Virology Career Activity Activity 3.2.5 - Routine Screenings</p> <p>Lesson 3.3: Treating Cancer (6 Days)</p> <p>Activity 3.3.1 - Diary of a Cancer Patient Project 3.3.2 - Biofeedback Therapy with EKG Project 3.3.2 – Biofeedback Therapy with Hand Grip Monitors (Alternative for Project 3.3.2 Biofeedback Therapy with EKG)</p>
WEEK 11	<p>Project 3.3.3 - Design of a Prosthetic Arm Project 3.3.4 - Occupational and Physical Therapy Careers</p> <p>Lesson 3.4: Building a Better Cancer Treatment (7 Days)</p> <p>Activity 3.4.1 - Personalized Medicine</p>
WEEK 12	<p>Activity 3.4.2 – Nanofuture Activity 3.4.3 - Clinical Trials Project 3.4.4 - Tiny Treatment</p>
WEEK 13	<p>Unit Four: How to Prevail When Organs Fail (24.5 Days)</p> <p>Lesson 4.1: Manufacturing Human Proteins (10 Days)</p> <p>Activity 4.1.1 - All About Insulin Activity 4.1.2 - Protein Factories Activity 4.1.3 - Protein Purification</p>
WEEK 14	<p>Activity 4.1.4 - Protein Gel Electrophoresis Activity 4.1.5 - Careers in Biomanufacturing</p>
WEEK 15	<p>Lesson 4.2: Organ Failure (1.5 Days)</p> <p>Activity 4.2.1 - Medical Detectives</p> <p>Lesson 4.3: Transplant (7.5 Days)</p> <p>Activity 4.3.1 - Who Should Receive the Organ? Activity 4.3.2 - Finding a Match Activity 4.3.3 - Kidney Donation</p>
WEEK 16	<p>Activity 4.3.4 - You Be the Surgeon Activity 4.3.5 - Transplant Team Activity 4.3.6 - Are All Transplants the Same?</p>

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WEEK 17	Lesson 4.4: Building a Better Body (5.5 Days) Activity 4.4.1 - Replacement Parts Problem 4.4.2 - The Bionic Human
WEEK 18	Activity 4.4.3 – Putting it all Together Review for Semester Exam and End of Course Test for PLTW

*** This syllabus serves as a guide for both the teacher and student; however, during the term it may become necessary to make additions, deletions or substitutions.**

Parent & Student Notifications

Students should check our Schoology classroom as soon as possible. Notes, videos, homework, extra credit, reminders, possible assignments and quizzes/tests will be uploaded often. To join the Schoology classroom as a student, you should have been automatically added, but let me know if you were not. If a parent would like a parent access code, please contact me.

Contact/Science Help:

I will be available to students during Refuel on most days. I encourage both the students and parents to let me know if there is anything I can do to help with student success. Email is the best way to reach me during the year. The only bad question is the one that is not asked. Please use me as a resource because I am here to help you! I look forward to helping each of you achieve success this year!