



Sage Creek High School
Course Syllabus
Medical Interventions



2023-24

Course Title

Medical Interventions (MI) – Project Lead the Way (PLTW)

*This course is articulated with SD Miramar College's Biotechnology 131 Course

Purpose of the Course

Welcome to Project Lead the Way and the Biomedical Sciences Program. Project Lead the Way is a national, not-for-profit educational program that assists high-school students in developing strong backgrounds in science and engineering. The following is the link to Project Lead the Way online:

<http://www.pltw.org/Biomedical/biomedical.cfm>

Medical Interventions (MI) is the third course in the Biomedical Sciences Program. During the course, students follow a fictitious family and learn how to prevent, diagnose, and treat a variety of diseases and ailments. Topics include infection and infectious agents, hearing loss, DNA analysis, genetic engineering, cancer, prosthetics, nanotechnology, and organ failure. Through case-studies, laboratory activities, research and projects, students discover current diagnostic and treatment options as well as what careers are involved in these fields.

****In order for students to earn 4 free college credits, they must earn an "A" or "B" in Medical Interventions and score an "A" or "B" on the Miramar College final (given in class @SCHS).***

Course Materials

Students will have access to and will be expected to take notes from the **myPLTW website**. Students will be given a **PLTW lab journal** for note taking. Students are encouraged to maintain a **3-ring binder with tabs OR a folder** to store printed handouts. It is also highly recommended that students use a **planner/agenda** to record assignments and bring **pens/pencils, erasers, & highlighters**.

Students will also be expected to bring their **laptop** to access the myPLTW website and other supplemental websites and online lab simulations.

Grading Scale

97-100%	A+	77-79%	C+
93-96%	A	73-76%	C
90-92%	A-	70-72%	C-
87-89%	B+	67-69%	D+
83-86%	B	63-66%	D
80-82%	B-	60-62%	D-
		0-59%	F

Assignment Values

60% PLTW Activities (includes classwork/homework, labs, & projects)
30% Quizzes
10% Final Exam

Google Classroom and AERIES Gradebook Expectations

Students are responsible for checking Google Classroom for course material, assignments and grades. AERIES gradebook will be used to post grades. Both students and parents are encouraged to log onto the AERIES portal to view grades and communicate with teachers.

[Here](#) are the AERIES instructions.

Student Expectations

Be your **BEST** Establish Community Show Respect Take Responsibility

- Conduct oneself in accordance w/the Student Code of Conduct outlined in the SCHS Student Handbook.
- You are expected to be in your assigned seat with your materials out by the time the bell rings.
 - Unless specified by the teacher, electronic devices (iPods, Cell Phones, Gaming Devices, etc.), except calculators, are NOT allowed at any time during the class period. If you have an electronic device, it must be turned off.
 - First offense is a warning & parent contact.
 - Second offense is confiscation of the device to the front office for parent pick-up.
 - Third offense is confiscation of the device to the front office for parent pick-up AND referral for detention.
 - To receive full credit on your homework and assignments, you must turn them in as soon as the teacher asks for them.
 - Assignments will only be accepted up to one day late and will receive partial credit.
 - When you are absent from class, it is your responsibility for finding out the missed notes and assignment(s) by checking on Google Classroom.
 - **It is mandatory that all students practice safety in the laboratory. Failure to do so will result in removal from the lab and an alternate assignment will be given.**

Academic Assistance

Please contact the teacher to make arrangements if further assistance is needed.

Trimester A Pacing Guide: Topics & Objectives

# of Days	Learning Targets	Essential Laboratories, Projects, and/or Activities	Formative & Summative Assessment(s)
26	Unit 1: How to Fight Infection	Lesson 1.1: The Mystery Infection Activity 1.1.1: Medical Interventions Inventory Activity 1.1.2: Investigating an Outbreak Activity 1.1.3: Using DNA to Identify Pathogens Activity 1.1.4: What's the Concentration? Activity 1.1.5: ELISA Activity 1.1.6: Final Diagnosis Lesson 1.2: Antibiotic Treatment Activity 1.2.1: Antibiotic Therapy Activity 1.2.2: Which Antibiotic is the Best Choice? Activity 1.2.3: Attack of the Superbugs Activity 1.2.4: When Antibiotics Fail Lesson 1.3: The Aftermath: Hearing Loss Activity 1.3.1: Good Vibrations Activity 1.3.2: Can You Hear Me Now? Activity 1.3.3: Cochlear Implant Debate Lesson 1.4: Vaccination Activity 1.4.1: Disease Prevention Through Vaccination	Worksheets Projects Section Quizzes Labs

		Activity 1.4.2: Vaccine Development Activity 1.4.3: Life of an Epidemiologist	
12	Unit 4: How to Prevail When Organs Fail	Lesson 4.1: Manufacturing Human Proteins Activity 4.1.1: All About Insulin Activity 4.1.2: Protein Factories Activity 4.1.3: Protein Purification Activity 4.1.4: Protein Gel Electrophoresis Activity 4.1.5: Careers in Biomanufacturing	Worksheets Projects Section Quiz Labs
15	Unit 2: How to Screen What is in Your Genes	Lesson 2.1: Genetic Testing and Screening Activity 2.1.1: Chronicles of a Genetic Counselor Activity 2.1.2: Copy Your Genes Activity 2.1.3: Test Your Own Genes Activity 2.1.4: Genetic Testing Activity 2.1.5: Maternal and Child Health Lesson 2.2: Our Genetic Future Activity 2.2.1: Gene Therapy Activity 2.2.2: Reproductive Technology	Worksheets Projects Section Quizzes Labs Final Exam

Trimester B Pacing Guide: Topics & Objectives

# of Days	Learning Targets	Essential Laboratories, Projects, and/or Activities	Formative & Summative Assessment(s)
42	Unit 3: How to Conquer Cancer	Lesson 3.1: Detecting Cancer 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 Activity 3.1.5: Unlocking the Secrets in Our Genes Lesson 3.2: Reducing Your Risk Activity 3.2.1: Am I at Risk? Activity 3.2.2: Skin Cancer Prevention Activity 3.2.3: Breast Cancer Screening and Prevention Activity 3.2.4: Virology Career Activity Activity 3.2.5: Routine Screening Lesson 3.3: Treating Cancer Activity 3.3.1: Diary of a Cancer Patient Activity 3.3.2: Biofeedback Therapy Activity 3.3.3: Design of a Prosthetic Arm Activity 3.3.4: Occupational and Physical Therapy Careers Lesson 3.4: Building a Better Cancer Treatment Activity 3.4.1: Personalized Medicine Activity 3.4.2: Nanofuture Activity 3.4.3: Clinical Trials Activity 3.4.4: Tiny Treatment	Worksheets Projects Section Quizzes Labs
16	Unit 4: How to Prevail When Organs Fail	Lesson 4.2: Organ Failure Activity 4.2.1: Medical Detectives Lesson 4.3: Transplant Activity 4.3.1: Who Should Receive the Organ? Activity 4.3.2: Finding a Match	Worksheets Projects Section Quizzes Labs

		Activity 4.3.3: Kidney Donation Activity 4.3.4: You Be the Surgeon Activity 4.3.5: Transplant Team Activity 4.3.6: Are All Transplants the Same? Lesson 4.4: Building a Better Body Activity 4.4.1: Replacement Parts Activity 4.4.2: The Bionic Human Activity 4.4.3: Putting it all Together	End of Course (EOC) Exam Final Project Miramar's BIO 131 Final Exam for College Credits
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