

Mission Valley ROP

Career Technical Training Center

5019 Stevenson Blvd, Fremont, CA 94538-2449

(510) 657-1865 · Fax (510) 438-0378 · www.mvrop.org



Course Title: **Honors PLTW Medical Interventions (MI) and Biomedical Innovations (BI)**

Units of Credit: 20 credits

Meeting Times/Dates: M-F: MVROP, 5019 Stevenson Blvd, Fremont, CA 94560

Afternoon session: 1:45-3:45 p.m.

Instructor Name: Masiha Farooq

Location/Room: MVROP, room 227

Contact Info: mfarooq@mvrop.org

Prerequisites: Three years of high school science or completion of PBS/HBS

Office hours: By request via email

Course Description:

This year long PLTW class comprises two courses, MI in the first semester and BI in the second semester. MI and BI are both UC approved (“d” Lab credit). This syllabus explains expectations for MI (first semester) only. **A detailed and separate BI syllabus will be provided in the second semester.** An out of classroom experience termed externships will be a part of the second semester and requires that students should be able to provide their own transport to these externships. Externship placement has a grade requirement of at least a B-, along with the teacher’s recommendation. Some sites may have a higher grade requirement. Sites may also require proof of COVID-19 vaccination and/or other vaccinations. Certain sites may also require background checks and drug testing.

PLEASE NOTE THAT EXTERNSHIP IMPLEMENTATION AND PLACEMENT IS EXPECTED TO TAKE PLACE DURING THE SECOND SEMESTER BUT WILL DEPEND ON ANY COVID-19 STIPULATIONS IN PLACE DURING THAT TIME.

NOTE: These two biomedical courses are approved as an A-G “D” Lab Science with the UC Schools. This is **not** meant to replace physical and life science courses for graduation, but will satisfy a 3rd and 4th year science course.

Medical Interventions (MI) SEMESTER 1

Students follow the life of a fictitious family as they investigate how to prevent, diagnose, and treat disease. Students explore how to detect and fight infection; screen and evaluate the code in human DNA; evaluate cancer treatment options; and prevail when the organs of the body begin to fail. Through real-world cases, students are exposed to a range of interventions related to immunology, surgery, genetics, pharmacology, medical devices, and diagnostics.

=====

Biomedical Innovations (BI) SEMESTER 2*

In the final course of the PLTW Biomedical Science sequence, students build on the knowledge and skills gained from previous courses to design innovative solutions for the most pressing health challenges of the 21st century. Students address topics ranging from public health and biomedical engineering to clinical medicine and physiology.

Note: Detailed course content/course objectives for both courses are available at <http://www.mvrop.org/Page/231>

*A detailed separate syllabus for BI will be provided in the second semester

=====

College articulation and college credit:

This honors MI/BI course is articulated with the Biot-105 Cell and Molecular Biology (4 units) course at Ohlone College, Fremont. In order to receive the Ohlone college credit, students must pass Medical Interventions, Biomedical Innovation and the Ohlone course assessment with a minimum score of 80%.

Mrs. Farooq has the right to alter this syllabus as needed

Lab work is an integral part of this course and successful completion of lab skills in addition to grade requirements, are required to earn both the MVROP certificate of completion and the Ohlone credits. In addition, students should complete the required Ohlone application in the Fall and Contract of Credit form in Spring.

Course Materials

There is no textbook for this class. Each student will receive a login that gives them access to the PLTW curriculum online which has all the units, lessons, projects and activities. Please use your OWN login and login is not to be shared with anyone else.

A three-ring binder with tabbed dividers. This binder should be specifically dedicated to the PLTW course and not shared with other classes

A second binder (one-inch, three-ring binder and five sheet protectors) will be required at the beginning of the second semester for creating a portfolio. This binder will include, at a minimum, a resume, a cover letter, a completed job application and one outstanding work sample/project.

1 bound notebook (no spiral), binder paper, pen and pencil

Scientific Calculator

Lab coats and goggles (will be provided unless students want to purchase their own)

Grading Policy/Evaluation (For MI): Based on a point system.

- a. Skills (Classwork, labs, binder, homework, research projects and presentations) -35%
- b. Knowledge (Quizzes and tests)-35%
- d. Work Ethic (Participation, attendance, employability skills and punctuality) – 20%
- e. End of semester project (final project)-10%

Grading Scale

A+ = 97%	B+ = 87%	C+ = 77%	D+ = 67%
A = 93%	B = 83%	C = 73%	D = 63%
A- = 90%	B- = 80%	C- = 70%	D- = 60%

Less than 60% = F grade

Policies and Procedures for High School Students
2022 - 2023 School Year

HOMEWORK POLICY:

Students will be notified what assignments are due and when. It is the responsibility of the student to take down due dates. Students are responsible for completing the assigned reading and homework and keeping up with the class. Any late submissions will have points deducted. If the assignment is turned in within one working day **after** the due date, half of the points will be deducted. Points will also be lost if the assignment is incorrect or incomplete. No assignment will be accepted beyond one week of the scheduled date.

ATTENDANCE:

- Mission Valley ROP's mission is to prepare students for employment, and career preparation via post-secondary educational opportunities. **Just as in business and industry, where employees are expected to show up on time every day, Mission Valley ROP students are expected to be on time for classes every day.** If your home high school has no school, a minimum day, or an optional student event that may conflict with your Mission Valley ROP class, you are still expected to attend your Mission Valley ROP class, unless otherwise directed by your MVROP instructor.
- Make up assignments and/or exams will be given for excused absences only, which include medical, legal, or bereavement circumstances. Failure to complete make-up assignments will adversely affect your grade. If you are tardy or miss a Mission Valley ROP class multiple times, your grade will be adversely affected.
- **Students must arrive on time to class.** Talking on a cell phone or having personal conversations outside the class is unproductive and will be considered tardy. Tardiness reduces instructional time and is disruptive to the classroom. Tardies may result in a student earning a lower grade or prevent the student from receiving a course certificate for the course. Tardy students will be placed on contract, which may result in being dropped from the ROP Center class.
- Except in cases of serious emergency, a student must have a note or receive the permission of the instructor to leave class to see an administrator.
- Hall passes prescribed by teachers are required for unaccompanied students to exit classrooms when class is in session. Students are to present their hall pass when asked by a school official.
- Many labs in MI/BI courses use perishable materials and/or require extensive set up which severely limits the opportunity for makeup work and hence **regular attendance is critical.**

PLEASE NOTE THAT your home school does NOT notify MVROP regarding attendance. Parent and student's counselor or administration (home school) will be called/emailed the student's absence for 2 DAYS and beyond if NO contact from the parent.

BULLYING AND HARASSMENT

- Bullying is repeated behavior, which involves an imbalance of power by the perpetrator(s) that causes harm to the target(s). It may harass, intimidate, threaten, terrorize, harm, or exclude. Such behavior

is often executed using electronic, written, verbal, visual, physical act or gesture, or conduct toward another person or persons.

- Mission Valley ROP is committed to providing a safe educational environment for students and staff in which all members of the school community are treated with dignity and respect in an environment free from harassment, intimidation or bullying. Mission Valley ROP prohibits harassment, bullying, hazing, or any other form of victimization.
- This policy is in effect while students are on property within the jurisdiction of the school; going to or coming from the school, on school-owned and/or school-operated vehicles, attending or engaged in school sponsored activities; on/or away from school grounds if the misconduct directly affects the good order, efficient management and welfare of the school.
- All incidents of bullying and harassment should be reported to the administration for resolution.

CHEATING:

- Mission Valley ROP is committed to preparing students for the workforce. This preparation includes technical skills as well as business ethics. Mission Valley ROP does not tolerate cheating.
- Any student caught cheating on an exam or copying work from other students will be given one warning and a failing grade on that assignment. Any subsequent incident will result in termination from his/her Mission Valley ROP program, a failing grade, and loss of credits.

DRESS CODE:

- Proper attire is expected of Mission Valley ROP students. Pajamas, slippers, or clothing that is too revealing, a distraction, or poses a safety concern (i.e. pants that must be held up with one hand because they are too baggy) should not be worn. Appropriate undergarments must be worn at all times. Clothing must be clean, neat, in good repair, and must convey professionalism. Clothing/accessories that identify affiliation with street gangs may not be worn. Clothing which covers the head and eyes for fashion purposes will not be allowed in MVROP buildings (i.e.: hats, caps, hoodies, do-rags, skull caps, bandannas, sunglasses, etc.) At the discretion of instructor and/or administrator, students may be placed on contract for violating dress code and/or removed from class. Repeated dress code violations may result in dismissal from ROP Center class.
- MVROP students at internship sites must wear picture Identification Badges.
- Please see additional dress code policies under Lab Safety Protocols

OFF-CAMPUS RELEASE:

- When circumstances require a student to be released from class early at the parent's request, photo identification will be required by Mission Valley ROP to facilitate release of the minor child to the parent.
- Photo identification will be copied and a signature will be required.
- If parent/guardian cannot come to the ROP Center, a signed note from parent/guardian to the instructor and/or front desk stating the date, time, reason for release, and valid signature. The note must contain a phone number to verify with the parent/guardian the reason for leaving campus.
- If a signed note is not presented to proper personnel and a parent/guardian cannot be present to check out the student, a phone call from the parent is required.
- Once on campus, students may not leave Mission Valley ROP campus during school hours without proper authorization. Unauthorized students leaving campus may result in dismissal from ROP Center class.

NO FOOD/NO DRINKS:

- No food or drinks will be allowed in MVROP buildings, including classroom, lobby, hallway, and restrooms. The Student Lounge is the only room where food or drinks other than water should be consumed. Students violating this policy will receive one warning via a behavior contract. Further incidents may result in termination from the ROP program.
- Students are encouraged to brown bag their lunch and eat before attending their ROP class to avoid being tardy.
- No food delivery services are allowed to be delivered to MVROP such as GrubHub, DoorDash, or pizza delivery except when pre-approved by the instructor for a class party.
- Please review Lab Safety protocol for additional policies

SMOKING/ALCOHOL/ILLEGAL SUBSTANCES:

- The use of tobacco, alcohol and drugs by minors is against the law. Students found in violation will be reported to law enforcement, dropped from his/her Mission Valley ROP program, and returned to his/her home school for further disciplinary action. This policy extends to all Mission Valley ROP-related training and activities including internship and job shadowing opportunities, field trips and events.

STUDENT BEHAVIOR:

- Mission Valley ROP provides courses for both high school and adult students, often in the same classroom. Appropriate behavior is expected from every student.
- Attending Mission Valley ROP programs is a privilege and is elective, not compulsory. Students who are unable or unwilling to comply with the established policies and procedures will be referred for transfer to their home school.

CLASSROOM BEHAVIOR:

1. Arrive to class on time.
2. Respect will be shown to all. No profanity.
3. At no time will you touch the teacher's desk or computer.
4. No food or drink/ gum allowed in the laboratory.
5. Follow all lab rules. Wear lab appropriate clothing and footwear.
6. No leaving class without permission from the instructor.
7. Leave lab equipment ALONE unless instructed. Handle lab equipment as instructed by the teacher when it is required to use them.
8. Listen while the instructor is talking.
9. Cell phones/headphones/electronic devices are strictly prohibited and need to be put away inside bags unless the instructor allows it for use related to the curriculum. Students have to follow additional cell phone/ electronic devices/headphone policies which will be explained in class.

COVID/HEALTH REQUIREMENTS:

- As per current guidelines, masks are not required and are optional. A mask will be provided if there is a need. Please note that if any guidelines change during the course of the school year, those will be implemented.
- All students should conduct a daily self-assessment for any signs or symptoms of illness.
- Students should stay home from school and school activities if they have any symptoms of an illness such as a fever, a cough, a sore throat or headache.

- Students should not return to school after an illness until they have been symptom free without medication for 24 hours and followed any health stipulations in place at that time.

Laboratory Safety:

Students and parents **must review and sign** a separate laboratory safety agreement before they are beginning lab work. This document goes over the lab safety rules and regulations for this class.

Laptops and other electronic equipment at MVROP:

There will be extensive use of laptops in the PLTW Biomedical Sciences class. Laptops are a privilege and not a right! Students are required to restrict laptop use to their curriculum and searching unrelated content on the laptops, playing games and changing desktop settings, etc. without teacher's permission is strictly prohibited. Students should abide by the Acceptable Use Policy and All Rules Regarding Cell Phone Use.

MVROP equipment is for educational purposes, Students are not allowed to take, modify, or add any files, programs, or data without permission from the teacher.

Students completing this course with a grade of "B-" or better will receive a Mission Valley ROP Certificate of Completion listing competencies achieved in the course.

By signing below you acknowledge that you have read the course syllabus, and understand the requirements for the MVROP Biomedical Sciences: Medical Interventions/ Biomedical Innovation program, 2022-23.

Student Agreement

As a student in this course, I have read and I understand the policies for the Biomedical Sciences course and agree to abide by the concepts outlined in the syllabus and disclosure statement.

Student's printed name _____

Student's phone/ email _____

Student's Signature _____ Date _____

Parent

My son/daughter has discussed with me the syllabus and the disclosure statement for the Biomedical Sciences Course and I agree with the documents and support my student in abiding by their precepts.

Parent/Guardian's printed name _____

Parent/Guardian's phone/ email _____

Parent/Guardian's Signature _____

Date _____

PLTW MVROP Biomedical Sciences Laboratory Safety Rules

Your participation in this laboratory requires that you follow safe laboratory practices. You are required to adhere to the safety guidelines listed below, as well as any other safety procedures given by your instructor or the instructor(s) in charge of the course. In the next class meeting, you will be asked to sign a form certifying that you were informed of the safety guidelines and emergency procedures for this laboratory. Violations of these rules are grounds for expulsion from this laboratory.

Note: You have the right to ask questions regarding your safety in this laboratory, either directly or anonymously, without fear of reprisal (mfarooq@mvrop.org).

- Locate the emergency evacuation plan. Become familiar with the recommended exit routes.
- Locate the emergency shower and eyewash station. Location of the fire extinguisher and fire alarm and fire blanket.
- The Safety Data Sheets (SDS) contain information on all known health hazards of the chemicals used in this course. In addition, there is information concerning the cleanup of spills and the accidental exposure to the chemical (e.g. skin contact or inhalation). You are advised to inspect the contents of the SDS binder.
- Dispose of all broken glassware, needles, and scalpel blades in the specially marked receptacle. Never place any of those items in the trash can.
- Exercise care in working with surgical instruments. Notify your instructor immediately if you receive any type of injury in the laboratory no matter how slight.
- Never pipette fluids by mouth. Pipettes will be available for your use. Check the odor cautiously. Never taste anything unless directed by your instructor.
- No make-up/lotion/ chapstick can be applied in the lab. Nails should be kept short. No long jewelry or raised stone ring(s)
- No food/water/chewing gum in the class. Do not drink water from the taps in the laboratory.
- School regulations prohibit eating and drinking at laboratory tables. If you wish to bring food/drink to lab, it must be stored in a designated “clean area” and eaten outside of the lab/student lounge (MVROP students)
- Shoes must be worn in the laboratory. Do not wear open-toed shoes or sandals.
- Wear a lab coat and safety goggles in this laboratory at all times, unless instructed otherwise. If you have long hair, please use a hair tie. We suggest that you don't wear loose long sleeves.
- Full length pants/jeans only- no shorts/skirts allowed in the lab.
- No cell phones/iPods/ iPhones in the lab. Avoid texting at all times.
- Wash your hands before and after working in the lab. Wear gloves as needed and directed to by your instructor.
- Turn off the Bunsen/alcohol burner when you are not using it.
- If any hazardous reagents are spilled, notify your instructor at once. Wait for instructions before attempting to clean up a spill.
- Before obtaining any reagents, carefully read the labels on the bottles twice. Many chemicals have similar names. Never return unused chemicals or solutions to the original dispensing bottle.
- Follow the instructor's directions for disposal of chemicals. When no specific directions are given, you may dispose of non-hazardous, water-soluble substances in the sink, and place insoluble materials such as filter paper in the wastebasket. If you are not sure, ask first.

- Biological waste and any other material contaminated with bacteria should be disposed of in specially marked biohazard bins with biohazard bags inside.
- Perform the only experiment assigned; do not experiment on your own. No unauthorized experiments are allowed.
- Every chemical in a laboratory must be properly labeled. Many chemicals have similar names, and you should read the name twice. If a chemical is a solution, the concentration will also appear on the label. Solution concentration is commonly described by molarity (e.g. 6M HCL) or by percent concentration (e.g. 0.9% NaCl). Labels should also include the initials of the preparer and the date of preparation.
- Use the proper instrument (eye-dropped, scoopula, etc.) to remove reagents from bottles. Do not cross contaminate reagents by using the same scoopula for two different reagents, e.g. don't use the mustard knife in the jelly jar.
- Additional lab policies will be included as and when required.

I have read and understood the above laboratory rules for the PLTW Biomedical Class: Medical Interventions/Biomedical Innovation 2022-23 at MVROP, and agree to abide by them.

Student's printed name _____

Student's phone/ email _____

Student's Signature _____

Date _____

My son/daughter has discussed with me the lab safety rules for the Biomedical Sciences Course and I agree with the documents and support my son/daughter in abiding by their precepts.

Parent/Guardian's printed name _____

Parent/Guardian's phone/ email _____

Parent/Guardian's Signature _____

Date _____