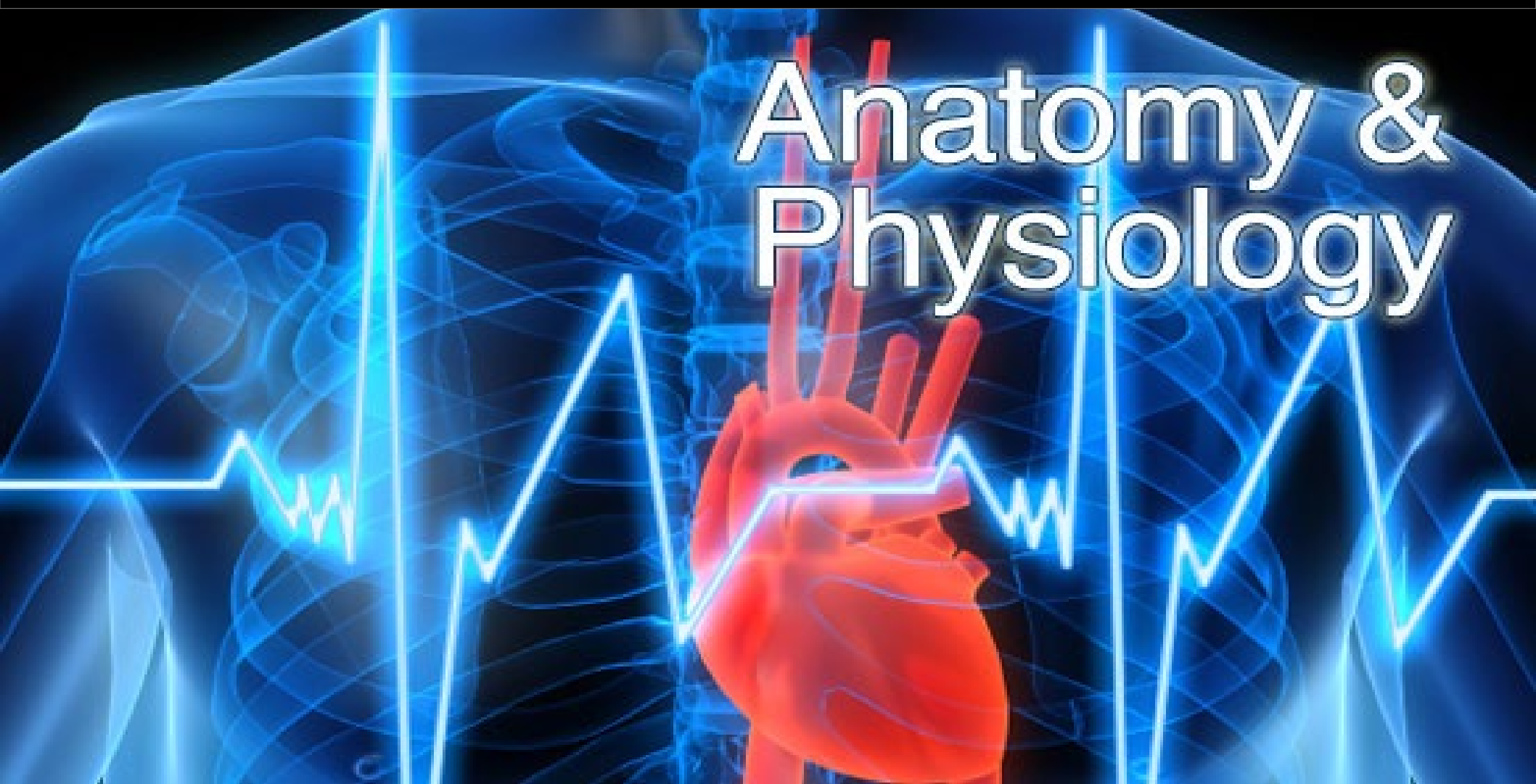


Welcome

Cliff Belleau MS – Adjunct Professor

Anatomy & Physiology

The background of the slide features a stylized anatomical illustration of a human torso. The ribcage and spine are depicted in a glowing blue, wireframe-like style. A prominent, realistic red heart is positioned in the center of the chest. Overlaid on the entire image is a bright red ECG (heart rate) line that zig-zags across the frame, adding a dynamic, medical feel to the design.

Learning AP Is Fun!

My goal is to help you learn human anatomy and physiology.

You may learn new information only if you are curious about the subject! In this class, we measure your success by what you learn. This class is your opportunity to learn AP. So, you will need to prepare for this opportunity! Are you curious about the functions of your body?

Some students may need to develop new study habits. You need to prepare before you come to class. You also need to learn new information every day. Come to lab and lecture sessions curious. (**Success = Preparation + Opportunity**)

I will assume that everybody in this class is an adult. We have “**shared responsibilities**”

- Be on time for the lecture and lab sessions.
- Respect your classmates, support staff, and faculty.
- Respect the lecture and lab resources.
- Ask questions if you don't understand something.
- Be prepared for lectures, labs, and exams. I will have more to say about “opportunities and what it means to be prepared”.

MC3 Open Enrollment Policy

Macomb's open enrollment policy is good because anybody may enroll in a class. Macomb's open enrollment policy is also bad because even students who lack the prerequisite knowledge to pass the class may enroll in the class.

If you do not have a basic knowledge in biology, chemistry, physics, and math then you may not be ready to take an anatomy and physiology class. If you are lacking the prerequisite knowledge, then you will find this class extremely difficult. You may not pass this class.

However, many of my students who start the class without all the prerequisite knowledge have earned an "A". But they had to learn the prerequisite knowledge they lacked while they learn the structure and function of the human body.

An open enrollment policy also means students start the class with different levels of knowledge. It is like running a race where everyone starts the race at a different position. Some students in your class may already have a four-year degree in biology. While other students may not have had a science class in 20 years.

Any student who is passionately curious and willing to put in the necessary study time may earn an "A" in my class.

About Anatomy and Physiology at MC3

This is an introductory college level anatomy and physiology course.

This is not a comprehensive AP course. We will not cover all the topics in the textbook.

You need to read a college level textbook (either the assigned book or another college level textbook). You need to read the scheduled lecture topics before I cover the topics in lecture. This is part of your preparation for the lecture! (More to come about preparation).

The course is designed for students interested in an allied health career.

My Web site (www.mc3cb.com) is designed to help you pass this class. The Web site's content includes lecture slides, chapter study guide homework assignments , video covering lecture topics, lab learning objectives, and much more.

The Web site also contains “extra-in-depth-content”. This information is not required but available only for curious students.

Shared Expectations

I assume you want a professor who is knowledgeable, passionate, and dedicated to helping you achieve your career goals. A professor who will be on time and be prepared for your lecture and lab sessions. This is my promise to you!

I need students who are passionate and curious. I need students who need to learn anatomy and physiology. (Do you know the difference between wanting something and needing something!)

You will need to follow Michigan Educational Association's benchmark for study time. The benchmark tells us how much study time is required to learn new lecture material.

The benchmark is “two to three hours” study time for each hour of lecture time. The lectures are two hours long. If you factor in extra time for lab preparation then you will need to study 2 to 3 hours per day, seven days a week for the next 16 weeks. The study time is required also on the days that we have class!

More About Study Time

“Study time” is also required on the days when we have class!

If you can't find time to study each day, then you will start to fall behind. You will not be able to catch up! Remember, if you do not have a solid science background, then you may need even more study time per day.

If you study only one hour per day, then you may fail this class.

Success in this class is all about “time on task”! **If you are not willing to do the time, then you should not take this class.** Study-time is an investment in your future.

If you follow my recommendations, then you should earn an “A or B” in my class.

(See Daily 24-Hour Worksheet)

Lab Conduct

Beverage, food, and snacks **are not allowed** in the lab.

Please **wash your hands before coming into the lab**. MC3 will provide gloves to wear when you do dissections. You will need to follow lab safety regulations. (Sign and turn in the lab safety agreement on day one.)

You may use your phone and computer in lab to access lab resources. (Please leave the lab if you need to talk on your phone.)

Do not use your lab time to prepare for lab. You need to **prepare for lab at home**. before you come to lab. Select the lab learning objectives you plan to identify in lab then at home, use your textbook, lab manual, Google image, and Web site resources to familiarize yourself these structures and their location. **Come to lab with a clear goal knowing what you need to identify. Use your lab time to quiz lab partners about the lab learning objectives.**

I am your lab **“facilitator”**. I am not expected to show the students all the lab learning objectives or to cover lecture topics in the lab session. The lab instructor shall answer student’s questions and help students identify lab objectives. **Students need to ask for help!** I will have sessions with groups of students to discuss select models and charts.

More About Lab

You need to work in groups of three or four students. These will be your lab partners. You need to work together to first identify all the daily lab learning objectives and then to quiz each other to test your knowledge. This is how you earn an “A” in the lab session.

Everyone in the group will need to prepare for lab. Students who don't prepare for lab often end up in their own group. These are the students who often fail the lab session.

Start every lab session by first **reviewing lab learning objectives** identified in the previous lab sessions. After the review, start to identify new structures.

Do you know how to eat an elephant? You do it by taking one small bite at a time. Use this technique to learn the unit lab objectives. Learn a new group of lab learning objectives each lab period.

Lab instructors will prepare **practice lab exams** to help you pace your learning experience. There will also be a practice lab exam setup in the learning center. There will also be online practice lab exams. The learning center will also have similar lab models and charts for students who need additional time to learn the structures.

Lecture Room Conduct

Please turn off your cell phones and put your phones and laptop computers in your backpack before you come into the lecture room. The only exception will be students with approved special accommodations from Student Access Services Department.

Research has proven that all digital devices (phones and computers) in the classroom lowers test scores! The test scores are lower for the person using the digital device as well as those sitting around the person with the digital device. (Read the articles on the Web site's home page about the negative impact of digital devices in the lecture room.)

You may have a beverage in the lecture room. However, food and snacks are not allowed in the lecture room.

Once the lecture starts, the instructor commands the floor. Students are not allowed to “cross talk” during the lecture. Students are encouraged to ask question. When you have a question or you want to make a comment, please raise your hand and I will allow you to speak.

Students need to be alert. If you fall asleep in the class, then I will ask you to leave the room. We will take a 10-minute break during the lecture.

About Lecture Preparation

Prepare for the lecture sessions at home or in the library **before you come to class.**

First, you need to read about the topic(s) to be covered in the lecture session.

Second, preview my lecture slides. Make notes about questions that you need to ask during the lecture.

Third, as you review the lecture slides, write out the answers to the Chapter Study Guide Questions. **This must be done before you come to class.** The Study Guide Questions follow the sequence of the lecture slides. The Study Guide Questions are also the TEST QUESTION!

If you can not find an answer or if you want to confirm that your answers are correct, then first ask one of your classmates to share their answer with you. If you are still not sure if your answer is correct, then ask me in our lecture QA session.

Exchanging ideas with other students is “active learning”!

Fourth, watch the Video Assignments. These videos feature the most important lecture learning objectives. This too must be done before we cover topics in lecture.

This is your “preparation”. If you can't do this, then you should drop the class now.

What happens if you do not prepare for lectures?

If you come to lecture “prepared” then we will use some of our lecture time to review Study Guide Questions. As you prepare for lecture, you should find questions to ask during our discussion session.

Your preparation then determines how much time we use in lecture for our “question and answer” session.

It is essential that all students must be prepared for the lectures. It does not work if only 10% of the class comes to class prepared for the lectures.

Everybody should have questions. And everybody needs to be prepared to answer questions from their chapter study guide homework assignments as well as questions you may have about the videos you watched.

If you fail to prepare for the lecture sessions, then by default I end up simply reading the power-point slides to you.

Chapter Study Guide Bonus Points

You may earn **four “extra credit bonus points” per unit** by turning in your Chapter Study Guide’s answers. You will turn in your CSG answers at the start of each lab session. Occasionally, there will be an exceptions to this schedule, and I will post this on the message board.

The Study Guide Questions are the critical factoids that **you need to know for the exam**.

All exam questions are taken directly from the Study Guides. If you know the answers to the Study Guide Questions, then you should earn an “A” on the lecture exam.

Your Study Guide Answers should not be “one-word answers”, however. **Don’t copy the “lecture slides” for your study guide answers**. Your answers should be more like “bullet points’. As you study using the chapter study guides, use the online lecture slides.

Write your answers on a separate piece of paper. At the top of the page write study guide, the chapter, and your full name. (**SG-C1-full name**)

I review your homework assignments for **completion but not for correctness**. This means it is critical for you to compare your answers with other students to confirm “correctness”. If you are still not sure if your answers are correct, then bring your questions to class.

As you compare your study guide answers with other student’s answers, edit your answers to make your answers more complete. This is “active learning”.

If a study guide question is not covered in class, then it may still be on the exam.

Collaborative Learning Using Chapter Study Guides

Health care is a team effort. No one person may take credit for a patient's healthcare. Therefore, it is important to learn how to work as a team. At MC3, we promote this idea in our lecture and lab classes.

You need to form a study group (groups of three or four is best) in your lecture and lab classes. Meet with students to compare and quiz each other using the Chapter Study Guide Questions. This will allow you to edit your answers. Flash cards (on paper not digital) are old school but are still the best learning aids!

As you complete the chapter study guide assignments; you are preparing for the unit exam. **Remember, the Study Guide Questions are the exam questions.** Assume half of each chapter's study guide questions will be on the exam!

Here is another key idea. You need to **learn the new topics cover in leacture daily as we cover the material in class.** Don't try to learn everything the day before the exam. You can't do it. If you try this then you will fail the class.

If you are serious about earning an "A" in this class, then this is how you do it! **Don't work by yourself and study two to three hours per day, seven days per week.**

Remember, the best way to advance your knowledge on any topic is to help someone learn the material!

Lecture Attendance Is Required

Bonus Points Are Proportional to Lecture Attendance

You enrolled in an on-campus class scheduled to meet on Monday and Wednesday for a two-hour lecture and a ninety-minute lab session. Attendance is required. You need to be come to class prepared so you can participate in lecture and lab activities.

You will need to turn in your chapter study guide homework assignments at the start of the lab session. These documents are used to monitor your attendance. The bonus points awarded will be proportional to your attendance record. If you do all the homework but only attend half of the lab/lecture sessions, then you will be awarded half of the bonus points.

If you do not attend class, then I can not help you learn anatomy and physiology . If you are not in class, then you can not participate in class activities and you can not help other students learn anatomy and physiology

Is it possible to earn an “A” without coming to lab/lecture session? Yes, but it is unlikely. I have taught this class many years and here is what I have learned. It is only the students who come to class that pass the class and earn an “A”.

Homeostasis: The Foundation of Medicine

You may earn four points on the lecture unit exams if you write the definition and draw the graphic for homeostasis.

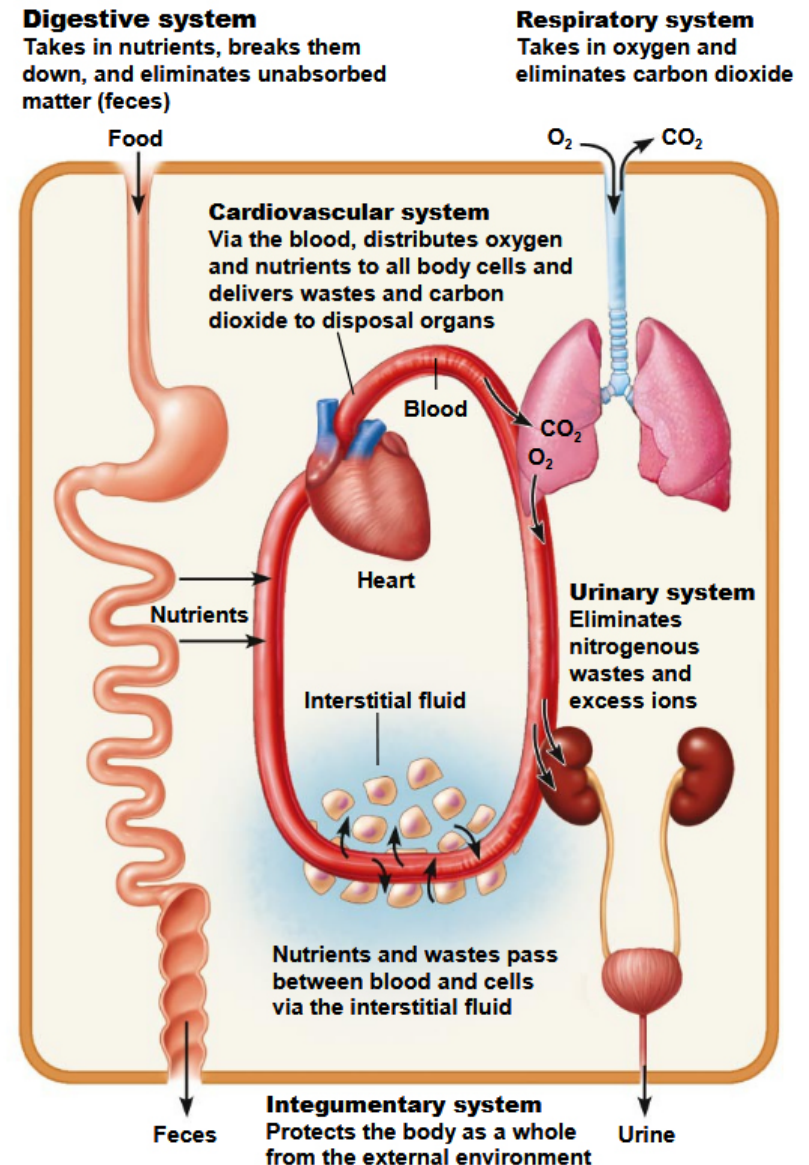
Homeostasis is the ability of a system to resist change. The human body is a system. The body's organs work to resist changes in the internal environment. This is the interstitial fluid that around cells.

The interstitial fluid is in a state of dynamic equilibrium. Some organs bring nutrients into the interstitial fluid. Nutrients are transported into the cell's cytoplasm. Cells metabolize the nutrients for growth, repair, or to make new cells. Cellular metabolism creates toxic waste.

Toxic waste is secreted out of the cell's cytoplasm and into the interstitial fluid. Other organs excrete the toxic waste out of our body.

The organ's functions are controlled by the autonomic nervous system and endocrine system using negative and positive feedback loops to make homeostasis possible. The brain's hypothalamus controls the autonomic nervous system and endocrine system.

Disease or death occurs when homeostasis fails.



Video to Help Students Understand Key Lecture Learning Objectives

There are videos covering key learning objectives for every chapter. I recommend that you watch these videos. They were selected to help you learn the lecture learning objectives.

The videos feature key learning objectives that I cover in my lectures. So, if you don't understand the lecture material, the videos will give you another perspective on the topic.

Students often find some of these topics hard to understand. The videos are designed to illustrate the concepts graphically. You may watch the videos as often as necessary until you understand the topic.

Then What Are the Opportunities?

If success occurs only when you are prepared for an opportunity, then what are the opportunities?

These are the opportunities you need to prepare for in this class?

- Lab sessions
- Lecture sessions
- Lab exams
- Lecture exams
- Video Homework
- Chapter Study Guides
- Homeostasis Definition
- Working with other students.
- Ability to ask questions

Often in life, you get only one chance at an opportunity. An opportunity should never be taken for granted or ignored.

How to Learn Science

You need to “**unleash your imagination**”. Imagine your body not as a monolithic structure but a collection of 30 trillion cells. The cells are made up of molecules which are constructed of even smaller structures called atoms.

You can't see atoms but you and everything in the universe is constructed from atoms. And the atoms are created in stars. This may seem strange, but it is true. The atoms in your body were formed inside a star. So, to learn human physiology; **you need to use your imagination!**

Every day, you need to make **quiet time** for yourself . This is time when you can think. This is a strange concept. It is **different than study time**. Time to think is quiet time, a **daydream state of mind**.

Einstein said that his quiet time was his most important time. Close your eyes and let your mind drift among all the human physiology factoids you have studied. It is here, in your quiet time, where you will start to understand human physiology.

How to Learn Human Physiology

Human physiology is your story. So, constantly **ask yourself questions** about the functions of your body.

How do you move? Why do you eat? How do you remember where you parked your car yesterday? What is a smell? What is pain? What is consciousness? Is there free will? What do all the different organs do? There is an endless list of questions to ask. All you need to do is be **passionately curious!**

Lastly, you need to **trust me**. The foundation of my class is built on **“best practices”**. You need to believe that when I ask you to do something, it is to help you achieve your career goal. You can not learn human physiology in 16 weeks. This will take a lifetime, however. I can help you build a solid foundation that will help launch you into a successful career in health care.

Preparation + Opportunity = Success

What Is The Easiest Way to Learn Physiology?

If I asked you to memorize 25 random factoids then this would be difficult. However, if you can take 25 factoids and arrange the factoids into one story then the task is not so hard. Now you only need to remember one story!

A story is a narrative, spoken or written. It is a series of connected events. The factoids you need to know, are the pieces of the story encoded in your Chapter Study Guides answers.

Start with a simple narrative with only few factoids. These factoids are like the pieces to a puzzle. As you connect the factoids together, you tell your story. Every good narrative needs a **beginning, a middle, and an end**.

As you learn additional factoids, you can add the new information to your narrative. This is a concept Greek orators used 2500 years ago to memorize their long speeches before we had teleprompters!

More About How to Learn Physiology

At first, the story should be **simple, short, not too complicated**, and may contain only use a few factoids. But as you learn more factoids, you will add new factoids to your story. When you tell your story to someone, remember to make sure you include a beginning, a middle, and an end.

Practice telling your story to someone who does not know anything about science. This will force you to explain the topic using a simple easy to understand language, not scientific jargon. This will show you if you really understand the topic.

*This advise is from Richard Feynman, considered to be the most brilliant scientist ever born in the United States. He said that the best way to see if you really understand the subject is to **tell your story to a ten-year-old child in a way, so they understand the story.** (Dr. Richard Feynman, PhD Theoretical Physics on How to Learn Anything)*

Learning physiology is not hard. You just need to practice telling your story to a ten-year-old.

Grades

Your final grade is calculated by taking an average of the four unit exams.

A Unit Exam Score is calculated by taking the average of the lab and lecture exam. The lab and lecture exams have equal value. (Note: The Unit One Lecture Exam is now split into two shorter tests: Part A and Part B)

The Science Department allows instructors to award four bonus points for each unit exam. You may earn the bonus points by first, turning in the chapter study guide questions on time and then, when ask in lecture to give your answer to one of the study guide questions. Everyone will be asked to give answers and students will be randomly selected. If you are not in class when your name is selected, then you will lose points.

The unit exams are 100 points plus the four bonus points.

Grading Scale

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

Carpe diem

Carpe diem is a phrase used by the Roman poet Horace (65 BC to 8 BC). Carpe diem means literally "Pluck the day", but it is usually translated as "Seize the Day".

For students, a better translation might be to **"Do everything you can do today to make tomorrow better"**.

Remember, the time you spend to prepare for your lecture and lab classes, the time you spend to learn the Science Department's Learning Objectives, this time is an **"investments in your future"**.

You are the only person that can put a value on your education!

Ask yourself, "Where do I want to be next year, three years from now, or ten years from now"? Time is **your enemy**, but it is also **your most valuable asset**.

So, use your time wisely. *You will be rewarded for the sacrifices you make today by having a brighter future tomorrow.*

Seneca (another Roman philosopher) said, "It is not that we have a short space of time, but that we waste much of it."

Carpe diem!