



Sports Medicine

INSTRUCTOR INFORMATION

Please go to your course and access the 'Course Home' for detailed instructor information.

CONTACT INFORMATION

Please feel free to contact me if you have any questions regarding your assignments or course content. Course facilitators respond to emails within 24 hours on weekdays and 48 hours on weekends. If you don't receive a response within that time, please reach out again, just in case I did not get your message.

Course Requirements

- Be proficient with the basic functions of word-processing software.
- Have access to a computer with internet that has virus-protection software.

- Use an acceptable web browser to access the course: Chrome, Safari or Firefox.
- Have access to your own digital camera or cell phone camera.
- Be able to transfer your images from your camera to your computer.

Course Goals

The Sports Medicine course aims to equip high school students with a comprehensive understanding of the key principles and practices essential to the field. By the end of the course, students will have a solid grasp of human anatomy and physiology relevant to sports performance, enabling them to analyze movement patterns and identify potential areas of injury risk. They will develop essential skills in injury prevention, assessment, and rehabilitation, gaining the ability to apply theoretical knowledge to real-life situations. Students will explore the psychological aspects of sports, understanding how mental factors impact athletic performance and recovery. Additionally, the course aims to instill a foundational understanding of nutrition for athletes and emergency response protocols. Through a combination of hands-on activities, projects, and assessments, students will emerge with practical skills and knowledge that not only prepare them for potential future careers in sports medicine but also contribute to their overall health and well-being.

Course Description

Throughout this dynamic course, students will explore various topics essential to sports medicine, including anatomy and physiology, biomechanics, injury assessment, rehabilitation techniques, nutrition, and the psychological aspects of athletic performance. Emphasis will be placed on applying theoretical knowledge to real-life scenarios, fostering critical thinking and problem-solving skills.

Course Outline

<u>Sports Medicine Semester A</u>	
Unit 1A:	Anatomy Crash Course
NGSS Standard Alignment	HSMT B2.3, HSMT B3.2, HSMT B4.1, HSMT B11.2, CRP 6, CRP 2, HS-LS1-2, HS-LS1-3, HS-LS1-7
Learning Objectives:	Block 1 – Intro to Injuries & Anatomical Terms <ul style="list-style-type: none"> ● Describe and categorize common sports

	<p>injuries using anatomical terminology.</p> <ul style="list-style-type: none"> • Develop an athlete profile using body region terms, movement vocabulary, and injury relevance. • Apply directional and regional terms to locate and describe body parts accurately. <p>Block 2 – Integumentary System & Injury Healing</p> <ul style="list-style-type: none"> • Identify key structures and functions of the integumentary system. • Analyze a wound healing case study and apply concepts of regeneration, protection, and recovery. • Consider skin-related factors that impact sports performance and injury. <p>Block 3 – Skeletal System</p> <ul style="list-style-type: none"> • Identify bones and key bone structures relevant to sports movement. • Analyze common bone injuries using clinical reasoning and terminology. • Explore the function of bones as levers and support systems in athletic performance (e.g., the pitcher's power). <p>Block 4 – Muscular System</p> <ul style="list-style-type: none"> • Identify major skeletal muscles and their actions in sport-specific movements. • Use interactive labs to explore muscular origins, insertions, and functions. • Analyze a sprinting case study and complete a muscular system performance task demonstrating structure-function links. <p>Block 5 – Cardiovascular and Respiratory Systems</p> <ul style="list-style-type: none"> • Identify the structure and function of the
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	<p>heart, blood vessels, and lungs in oxygen delivery.</p> <ul style="list-style-type: none"> • Explore how exercise affects the cardiovascular and respiratory systems through an endurance-based case study. • Complete a performance task showing how these systems respond to physical exertion. <p>Block 6 – Nutrition, Digestion & Final Scenario</p> <ul style="list-style-type: none"> • Explain how nutrients are broken down and used to fuel athletic performance. • Analyze how diet influences endurance and recovery in sports. • Synthesize unit knowledge into an Athlete Injury Scenario Presentation, combining systems knowledge, injury analysis, and recovery principles.
Block 1	Anatomical Terminology
Basic Injury Descriptions	Discussion ▾
Athlete Injury Description	Activity ▾
Developing an Athlete Profile and Anatomical Terminology	Performance Task ▾
Block 2	Integumentary System
Athlete Armour	Discussion ▾
Wound Healing Case Study Analysis	Activity ▾
Integumentary System Considerations for Sport	Activity ▾
Portfolio Setup & Introduction Page	Performance Task ▾
Block 3	Skeletal System
Common Bone Injuries Analysis	Discussion ▾

Skeletal System Exploration: An Interactive Lab Worksheet	Lab ▾
Athlete's Skeletal Analysis: The Pitcher's Power	Activity ▾
Skeletal System Function	Performance Task ▾
Block 4	Muscular System
Discussion - Muscle Actions in Sport	Discussion ▾
Muscle Identification: Interactive Lab Worksheet	Lab ▾
Case Study: Explosive Power from the Blocks	Activity ▾
Muscular System Function Performance Task	Performance Task ▾
Block 5	Cardiovascular System
Cardiovascular Demands in Sports	Discussion ▾
Cardiovascular and Respiratory System Exploration	Lab ▾
Case Study: The Mountain Stage Challenge	Activity ▾
Cardiovascular System Response Performance Task	Performance Task ▾
Block 6	Digestive System
Discussion - Nutrition and Athletic Performance	Discussion ▾
(extra credit) Food Journal Analysis	Activity ▾
Case Study: Sarah, the Endurance Cyclist	Activity ▾
Digestive System and Nutrition: Performance Task	Performance Task ▾

Athlete Injury Scenario Presentation	Performance Task ▾
Unit 1B:	Advanced Anatomy
NGSS Standard Alignment	HSMT B2.2, HSMT B3.4, HSMT B4.1, HSMT B8.3, HSMT B10.2, CRP 4, CRP 6, CRP 11, HS-LS1-2, HS-LS1-3, HS-LS1-4, HS-LS3-1
Learning Objectives:	<p>Block 1 – Medical Mystery & Condition Research</p> <ul style="list-style-type: none"> Identify and analyze a complex medical condition, including its anatomical foundation. Create a topic pitch video introducing a real-world clinical problem. Write a detailed report outlining affected systems, symptoms, and physiological disruptions. <p>Block 2 – Cellular Signaling & Microanatomy</p> <ul style="list-style-type: none"> Discuss cellular signaling pathways and their role in maintaining homeostasis or triggering disease. Use digital microanatomy tools to explore affected tissues or cell types. Construct a visual and written analysis of the condition's pathophysiology. <p>Block 3 – Biomedical Design & Innovation</p> <ul style="list-style-type: none"> Identify core principles of biomedical design used in developing treatments and technologies. Propose a design concept to address or manage the medical condition under study. Justify the innovation using biological, anatomical, and clinical reasoning. <p>Block 4 – Design Feasibility</p>

	<ul style="list-style-type: none"> • Develop a design specification outlining materials, function, and usability. • Evaluate feasibility and effectiveness of the proposed solution. • Prepare draft presentation materials and visual models (if applicable). <p>Block 5 – Ethics in Medicine</p> <ul style="list-style-type: none"> • Analyze ethical issues related to the chosen condition or proposed intervention. • Apply core ethical principles (autonomy, beneficence, justice, etc.) to real-world scenarios. • Write and discuss ethical dilemmas using structured analysis. <p>Block 6 – Final Presentation & Showcase</p> <ul style="list-style-type: none"> • Synthesize research, design, and ethical considerations into a professional-grade presentation. • Communicate complex medical and scientific concepts with clarity and precision. • Reflect on learning, innovation, and areas for continued exploration in healthcare.
Block 1	Anatomy Challenge Selection & Initial Research
Medical Mystery Scenario	Discussion ▾
Topic Pitch Video	Activity ▾
Condition Analysis & Anatomical Foundation Report	Performance Task ▾
Block 2	Advanced A&P Analysis
Discussion - Cellular Signaling	Discussion ▾

Pathways	
Visible Body Microanatomy Exploration	Lab ▾
Pathophysiological Analysis & Visualization	Performance Task ▾
Portfolio Setup & Introduction Page	Performance Task ▾
Block 3	Problem Definition and Solution Ideation
Discussion - Biomedical Design Principles	Discussion ▾
Innovation Proposal & Design Principles	Performance Task ▾
Block 4	Solution Development & Refinement
Design Specification	Discussion ▾
Detailed Design and Feasibility	Performance Task ▾
Block 5	Presentation Preparation & Self-Review
Ethical Principles	Discussion ▾
Case Study - Ethical Guidelines	Activity ▾
Ethical Analysis	Performance Task ▾
Block 6	Final Presentation & Reflection
Presentation Complex Information	Discussion ▾
Final Presentation/Showcase worksheet	Performance Task ▾
Final Presentation/Showcase	Performance Task ▾
Unit 2:	Introduction to Strength & Conditioning
NGSS Standard Alignment	HSMT B3.2, HSMT B4.1, HSMT B4.3, HSMT B11.2, CRP7, CRP 1, CRP 3, HS-LS1-2,

	HS-LS1-6, HS-LS1-7
Learning Objectives:	<p>Block 7 – Fueling the Body</p> <ul style="list-style-type: none"> • Identify key components of the digestive system and how they function to process macronutrients. • Analyze the effects of energy drinks on the body through a scientific case study ("Another Can of Bull"). • Interpret food labels and marketing claims using evidence-based analysis. <p>Block 8 – Energy Systems Training</p> <ul style="list-style-type: none"> • Describe the three energy systems (ATP-PC, glycolytic, oxidative) and their roles in athletic performance. • Match energy systems to different sports and training intensities. • Create a basic training plan that targets specific energy system demands. <p>Block 9 – Sports Hydration & Nutrition</p> <ul style="list-style-type: none"> • Describe the role of hydration in athletic performance and thermoregulation. • Evaluate different types of hydration strategies (water, electrolytes, sports drinks). • Conduct guided research to compare and critique sports nutrition guidelines. <p>Block 10 – Body Composition & Weight Analysis</p> <ul style="list-style-type: none"> • Define body composition and explain how it differs from body weight. • Discuss the relationship between weight and performance in different sports. • Analyze case studies and ethical considerations related to weight categories and expectations in elite

	<p>athletes.</p> <p>Block 11 – Culminating Project: Nutrition and Hydration Plan</p> <ul style="list-style-type: none"> • Design a detailed nutrition and hydration plan for an athlete based on their sport, position, and training cycle. • Apply principles of macronutrient balance, hydration timing, and performance fueling. • Present the plan with scientific justification and reflective personal connections.
Block 7	Digestion and Macro-Nutrients
Fueling the Body	Discussion ▾
Digestion Atlas Lab	Lab ▾
Another can of Bull Case Study	Activity ▾
Block 8	Energy Systems of the Human Body
Energy Systems Training Assignment	Activity ▾
Energy on Demand	Discussion ▾
Block 9	Hydration and Exercise
Sports hydration	Discussion ▾
Sports Hydration and Nutrition Guided Research Questions	Activity ▾
Block 10	Body Composition
What is Body Composition	Discussion ▾
The Write Weight	Activity ▾
Analyzing the weight/weight relationship in elite sports	Activity ▾

Block 11	Unit 2 Project: Nutrition Planning for Youth Athletes
Culminating Project - Nutrition and Hydration for Athletes	Performance Task ▾
Sports Nutrition Plan	Discussion ▾
Unit 3:	Clinical Aspects of Fitness Testing
NGSS Standard Alignment	HSMT B2.5, HSMT B3.3, HSMT B5.3, HSMT B11.2, CRP 3, CRP8, CRP 12, HS-LS1-3, HS-LS1-2
Learning Objectives:	<p>Block 12 – Olympic Body & Mind: The Mental Game</p> <ul style="list-style-type: none"> Describe the role of mental resilience and focus in elite athletic performance. Identify psychological factors that enhance or hinder physical performance. Reflect on personal habits and mindsets that support a strong mind-body connection. <p>Block 13 – The Comeback: Mental Effects of Injury</p> <ul style="list-style-type: none"> Analyze the psychological effects of athletic injury (depression, frustration, fear of reinjury). Explore strategies for mental recovery alongside physical healing. Interpret athlete case studies highlighting the mental-emotional side of injury recovery. <p>Block 14 – Mental Wellness Plan</p> <ul style="list-style-type: none"> Create a personal mental wellness plan integrating stress reduction, mindfulness, and resilience strategies. Identify warning signs of mental health decline and coping strategies for academic or athletic pressure.

	<ul style="list-style-type: none"> Understand the relationship between mental wellness, recovery, and athletic performance. <p>Block 15 – CPR Training & Final Portfolio</p> <ul style="list-style-type: none"> Demonstrate basic life support skills through CPR and AED training. Complete a CPR review quiz and earn National CPR Foundation certification. Upload course artifacts and reflections to a digital portfolio and engage in self-assessment of progress.
Block 12	Digestion and Macro-Nutrients
Olympic Body & Mind	Activity ▾
The Mental Game	Discussion ▾
Block 13	Energy Systems of the Human Body
The Comeback	Discussion ▾
Analyzing the Mental Effects of Injury	Activity ▾
Block 14	Hydration and Exercise
Mental Wellness Plan	Activity ▾
Strong Minds, Strong Bodies	Discussion ▾
Block 15	Culminating Project
CPR Training	Discussion ▾
CPR Review Quiz	Activity ▾
National CPR Foundation Certification	Activity ▾
Portfolio - Course Pages – Artifact Upload & Reflection	Performance Task ▾

Sports Medicine Semester B

Unit 1:	Biomechanics
NGSS Standard Alignment	HSMR B2.3, HSMR B4.1, HSMR B9.2, HSMR B11.3, CRP 5, CRP6, HS-LS1-2, HS-LS1-3
Learning Objectives:	<p>Block 1 – Levers & Portfolio Setup</p> <ul style="list-style-type: none">• Identify and classify the three types of levers in the human body.• Apply biomechanical principles to human motion scenarios.• Set up a digital portfolio and create an introductory page for reflection and documentation. <p>Block 2 – Gait Analysis</p> <ul style="list-style-type: none">• Describe the phases of the gait cycle and identify deviations from normal gait.• Analyze a video or real-life gait pattern and assess for efficiency or abnormalities.• Connect gait deviations to musculoskeletal or neurological conditions. <p>Block 3 – Movement Analysis</p> <ul style="list-style-type: none">• Break down a functional movement (e.g., squat, jump, throw) using biomechanical terminology.• Assess muscle actions, joint angles, and force production involved in the movement.• Interpret findings and suggest improvements to enhance performance or prevent injury. <p>Block 4 – Biomechanics Project</p> <ul style="list-style-type: none">• Complete a biomechanics-based presentation or report analyzing a

	<p>chosen movement.</p> <ul style="list-style-type: none"> • Integrate knowledge of levers, gait, and movement patterns into a single cohesive analysis. • Communicate findings clearly with diagrams, movement breakdowns, and evidence-based suggestions.
Block 1	Levers of the Human Body
Case Study - Levers of the Human Body	Discussion ▾
Biomechanics Activity	Activity ▾
Portfolio Setup & Introduction Page	Performance Task ▾
Block 2	Gait Analysis
Gait Analysis	Discussion ▾
Gait Analysis Activity	Activity ▾
Block 3	Movement Analysis
Movement Analysis	Discussion ▾
Movement Analysis Activity	Activity ▾
Block 4	Unit Project
Biomechanics project	Performance Task ▾
Breaking Down the Movement	Discussion ▾
Unit 2:	Introduction to Strength and Conditioning
NGSS Standard Alignment	HSMT B4.1, HSMT B4.3, HSMT B9.2, HSMT B10.1, HSMT B11.3, CRP 1, CRP 6, HS-LS1-2, HS-LS1-3, HS-LS1-7
Learning Objectives:	Block 5 – Meet Your Athlete (Case Study Intro)

- Analyze a client profile to identify fitness level, strengths, limitations, and goals.
- Begin building rapport through understanding athlete needs.
- Apply anatomical and physiological principles to create a client snapshot.

Block 6 – SMART Goals & Case Study Part 3

- Develop SMART (Specific, Measurable, Achievable, Relevant, Time-bound) fitness and performance goals.
- Use case study data to refine client objectives and milestones.
- Link goal-setting strategies to long-term health and performance outcomes.

Block 7 – Year of Progress Plan (Case Study Parts 4 & 5)

- Design a year-long periodized training plan including phases of prep, performance, and recovery.
- Justify exercise selections and timing based on athlete goals and sport.
- Apply principles of strength, conditioning, recovery, and progression.

Block 8 – Culminating Project: Athlete Training Plan

- Present a comprehensive training plan for a hypothetical athlete including goals, phases, and metrics for success.
- Communicate effectively using professional formatting and terminology.
- Reflect on learning, challenges, and application to real-world sports or fitness careers

Block 5	Basic Principles of Strength & Conditioning
Meet Your Athlete	Discussion ▾
Case study – Strength and conditioning client	Activity ▾
Block 6	Case study – Strength and conditioning client
Strength and Conditioning Case Study Part 3	Activity ▾
Setting SMART Goals	Discussion ▾
Block 7	Program Design
Strength and Conditioning Case Study Parts 4 & 5	Activity ▾
Designing a Year of Progress	Discussion ▾
Block 8	Unit 2 Culminating Project
Culminating Project - Athlete Training Plan	Performance Task ▾
Unit 3:	Clinical Aspects of Fitness Testing
NGSS Standard Alignment	HSMT B4.1, HSMT B5.4, HSMT B9.2, HSMT B11.3, CRP2, CRP 4, HS-LS1-2, HS-LS1-3, HS-LS1-7
Learning Objectives:	<p>Block 9 – Fitness Assessment & Lab</p> <ul style="list-style-type: none"> Identify and describe key components of fitness (cardiovascular endurance, muscular strength, flexibility, etc.). Conduct a personal fitness assessment and record results. Analyze fitness data to identify strengths and areas for improvement. Reflect on personal fitness levels and goal-setting strategies.

	<p>Block 10 – Fitness Testing Protocol Presentation</p> <ul style="list-style-type: none"> • Research and present a scientifically valid fitness test (e.g., VO_2 max, vertical jump, sit-and-reach). • Demonstrate understanding of protocol design, validity, and safety considerations. • Communicate the purpose and implementation of the fitness test to peers. <p>Block 11 – Personalized Fitness Training Plan & Peer Review</p> <ul style="list-style-type: none"> • Design a personalized training plan based on individual assessment data. • Apply principles of progression, overload, and specificity. • Conduct a peer review and revise the training plan based on feedback. • Reflect on learning, improvement, and future physical health goals.
Block 9	Clinical Aspects of Fitness Testing Project
Fitness Component Assessment & Reflection	Activity ▾
Fitness Testing Lab & Data Analysis	Discussion ▾
Block 10	Fitness Testing
Fitness Testing Protocol Presentation	Activity ▾
Fitness Testing	Discussion ▾
Block 11	Personalized Training Plans

Personalized Fitness Training Plan	Performance Task ▾
Peer Review	Discussion ▾
Unit 4:	Rehabilitation Planning and Techniques
NGSS Standard Alignment	HSMT B2.1, HSMT B4.1, HSMT B4.3, HSMT B5.3, HSMT B9.2, HSMT B10.3, HSMT B11.1, HS-LS1-2, HS-LS1-3, HS-LS1-4
Learning Objectives:	<p>Block 12 – Injury Assessments</p> <ul style="list-style-type: none"> Identify and explain common injury assessment techniques (e.g., HOPS, SOAP). Perform a basic injury assessment and document findings. Apply anatomical and physiological knowledge to real-world injury scenarios. <p>Block 13 – Sports Medicine Rehab Exercise Portfolio</p> <ul style="list-style-type: none"> Describe the principles of rehabilitation (progression, specificity, and adaptation). Research, select, and demonstrate rehab exercises for different injuries. Compile an exercise portfolio organized by injury type and recovery goals. <p>Block 14 – Individual Rehabilitation Plan & Career Readiness</p> <ul style="list-style-type: none"> Design a personalized rehabilitation plan based on case study data or clinical reasoning. Incorporate timelines, progress tracking, and adaptations into the plan. Complete a career readiness activity exploring pathways in physical therapy, athletic training, or related fields.

	<p>Block 15 – First Aid Certification & Final Portfolio</p> <ul style="list-style-type: none"> • Demonstrate foundational knowledge and skills for first aid certification. • Organize course artifacts and upload evidence of learning into a digital portfolio. • Reflect on growth, skills development, and future goals through peer review and final showcase.
Block 12	Injury Assessment
Injury Assessments	Discussion ▾
Injury Assessment Activity	Activity ▾
Block 13	Rehabilitation Principles
Sports Medicine Rehab Exercise Portfolio	Activity ▾
Rehabilitation Principles	Discussion ▾
Block 14	Injury Prevention and Communication Skills
Individual Rehabilitation Plan	Activity ▾
Designing for Recovery	Discussion ▾
Career Readiness Page	Performance Task ▾
Block 15	
First Aid Certification	Activity ▾
Portfolio - Course Pages – Artifact Upload & Reflection	Performance Task ▾
Final Portfolio Showcase & Peer Review	Discussion ▾

Method of Instruction

This is an online course, and while there is flexibility in how and when you do assignments, it is best to log in and complete work each day according to the posted pacing schedule. Due dates will be clearly stated for each assignment in the course calendar and the weekly schedule. It is highly recommended that learners follow the pacing schedule posted, but work may be submitted late.

This course uses project based learning to encourage an authentic, developed appreciation of the topics covered. That means that while it may include some traditional assessments, the bulk of the coursework focuses on projects that require learners to display their learning in a thorough and creative manner.

If you are struggling to complete your work or you need some assistance with an alternate schedule or workload, please contact me as soon as possible. I am more than happy to help support your success in the class!

Learner Expectations

- Check the course pages for directions and announcements every weekday.
- Check your email every weekday to see if your instructor has emailed you.
- Read the assigned readings on the weekdays you're directed to.
- Use available resources including teacher support.
- Create original work and submit it on time.

Discussion Board Posts

- Discussions are credit/no credit so just participating in them will earn you credit. If you are unable to answer the discussion questions just mention that and then share what you think of the video or ask a question about it. Your opinion matters so feel free to share it. :)
- Note: If you feel uncomfortable interacting with the other learners then please message me directly so I may accommodate you.

Netiquette

Netiquette is a set of rules for behaving properly online. The following bullet points cover some basics to communicating online:

- Use good taste when composing your responses in Discussion Forums. Swearing and profanity is also part of being sensitive to your classmates and should be avoided. Also consider that slang can be misunderstood or misinterpreted.

- Be sensitive to the fact that there will be cultural and linguistic backgrounds, as well as different political and religious beliefs, plus just differences in general.
- Don't use all capital letters when composing your responses as this is considered "shouting" on the internet and is regarded as impolite or aggressive. It can also be stressful on the eye when trying to read your message.
- Be respectful of your others' views and opinions. Avoid "flaming" (publicly attacking or insulting) them as this can cause hurt feelings and decrease the chances of getting all different types of points of view.
- Be careful when using acronyms. If you use an acronym it is best to spell out its meaning first, then put the acronym in parentheses afterward, for example: Frequently Asked Questions (FAQs). After that you can use the acronym freely throughout your message.
- Use good grammar and spelling, and avoid using text messaging shortcuts.
- I expect students to treat fellow students, their instructors, other faculty, and staff with respect. Any student or employee will tolerate no form of "hostile environment" or "harassment."

Grading:

Each assignment is given a specific number of points. The number of points earned by the student is determined, and a percentage is calculated. The raw score is recorded in the grade book.

Honesty and Plagiarism

Plagiarism of any sort is prohibited. According to the Merriam-Webster online dictionary, to "plagiarize" means:

- to steal and pass off (the ideas or words of another) as one's own
- to use (another's production) without crediting the source
- to commit literary theft
- to present as new and original an idea or product derived from an existing source

Please review [THIS RESOURCE](#) for more information on plagiarism. Any plagiarized work will be given a zero and referred to your EF/COACH/GUIDE for review.

Privacy Policy

All work submitted is the property of the author and is not available to anyone not in the class. If work is to be submitted or viewed outside of this website, I will obtain permission from the author. [FERPA Info](#)

