# Sports Medicine I Course No. 14072 Credit: 1.0

|  |  |  |  |
| --- | --- | --- | --- |
| **Student name:**  |  | **Graduation Date:** |  |

Pathways and CIP Codes:Health Science

Course Description: **Technical Level:** This course is designed to teach students components of exercise science/sports medicine; including exploration of therapeutic careers, medical terminology, anatomy and physiology, first aid, injury prevention principles, the healing process, rehabilitation techniques, therapeutic modalities, sport nutrition, sport psychology, and performance enhancement philosophies.

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Explain legal issues and legal terminology

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Discuss risk management in an athletic setting (collision, contact, non-contact, surfaces). |  |
| 1.2 | Define legal terminology and discuss issues including: Assumption of risk, Battery, Commission and omission, Failure to warn, HIPAA, Informed consent, Liability, Malpractice, Negligence (duty of care, breach of duty, damage/injury, proximal cause, Standard of care. |  |
| 1.3 | Discuss parameters of ethical conduct and associated issues including: Americans with Disabilities Act, Cheating, Drug testing, Fair play and sportsmanship, Performance enhancing drugs, Scope of practice, Title IX (gender equity in sports), Winning at all costs. |  |
| 1.4 | Review preventative measures to reduce potential risks of litigation: |  |
|  | * Be familiar with athletes
 |  |
|  | * Carry liability insurance
 |  |
|  | * Demonstrate appropriate documentation (SOAP)
 |  |
|  | * Follow physician orders and recommendations
 |  |
| 1.5 | Maintain adequate supervision. |  |
| 1.6 | Examine the Health Insurance Portability and Accountability Act (HIPAA). |  |
| 1.7 | Identify consequences of violating Health Insurance Portability and Accountability Act (HIPAA). |  |

## Benchmark 2: Describe the basic principles and specialized equipment used in the prevention of athletic injury

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Recognize types and functions of protective equipment including: Helmet, facemask, ear guards, Mouth guards, Neck collars, Padding, Sports bras, Athletic supporter/cup, Shin guards, Shoe, Other sport specific protection devices. |  |
| 2.2 | Discuss the legal ramifications of manufacturing, buying, and issuing equipment including: NOCSAE warning, Modification of equipment, Proper fit and selection, Use of defective or worn out equipment. |  |

## Benchmark 3: Identify soft tissue injuries and skin conditions.

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Differentiate signs, symptoms, and treatment for: Avulsions, Abrasions, Bites, Blisters, Contusions, Lacerations, Stings. |  |
| 3.2 | Differentiate signs, symptoms, and treatment for: Ring worm, Jock itch, Athlete’s foot, Impetigo, MRSA/STAPH, Warts, Eczema. |  |

## Benchmark 4: Recognize abdominal injuries, bleeding, and shock

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Discuss external bleeding. |  |
| 4.2 | Demonstrate proper procedures to control bleeding (Apply direct pressure with sterile gauze pad, Apply a pressure dressing, Check circulation). |  |
| 4.3 | Identify signs, symptoms, and treatment of internal bleeding. |  |
| 4.4 | Identify signs, symptoms, and treatment of abdominal injuries (Ruptured spleen, Appendicitis, Hernia). |  |
| 4.5 | Describe shock and the treatment for shock. |  |

## Benchmark 5: Describe the treatment for both medical and evrionmental conditions

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Describe the treatment for Seizures. |  |
| 5.2 | Describe the treatment for Fainting. |  |
| 5.3 | Describe the treatment for Diabetes Type 1 & 2. |  |
| 5.4 | Describe the treatment for Anaphylactic shock. |  |
| 5.5 | Describe the treatment for Asthma. |  |
| 5.6 | Compare and contrast the causes, signs, symptoms, and treatment of heat illnesses (Heat cramps, Heat exhaustion, Heat stroke, Dehydration, Sunburn). |  |
| 5.7 | Compare and contrast the causes, signs, symptoms, and treatment of cold exposure (Hypothermia, Frostbite). |  |
| 5.8 | Compare and contrast signs of Altitude sickness (HAPE, HACE). |  |

## Benchmark 6: Identify bones and soft tissues

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Explain the differnce between the axial and appendicular skeleton. |  |
| 6.2 | Define the functions of the skeletal system. |  |
| 6.3 | Explain the difference between skeletal, smooth, and cardiac muscle. |  |
| 6.4 | Explain the physiology of a muscle strain. |  |
| 6.5 | Describe the function of a nerve cell. |  |
| 6.6 | Explain nerve injuries and their treatment. |  |
| 6.7 | List the different types of soft tissue injuries and their treatment. |  |
| 6.8 | Explain how the body responds to injuries. |  |

## Benchmark 7: Identify and utilize anatomical positions, planes, and directional terms

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Demonstrate what anatomical position is and how it is used to reference the body. |  |
| 7.2 | Distinguish between the commonly used anatomical planes and recognize their individual views  |  |
|  | * Sagittal/Midsagittal Plane
 |  |
|  | * Frontal/Coronal Plane
 |  |
|  | * Transverse/Horizontal Plane
 |  |
| 7.3 | Apply directional terms to their location on the human body |  |
|  | * Superior/Inferior
 |  |
|  | * Anterior/Posterior
 |  |
|  | * Medial/Lateral
 |  |
|  | * Distal/Proximal
 |  |
|  | * Superficial/Deep
 |  |
|  | * Ventral/Dorsal
 |  |
|  | * Prone/Supine
 |  |
|  | * Unilateral/Bilateral
 |  |

## Benchmark 8: Demonstrate body movements.

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Compare and contrast the various movements of the body and their counter-movement: |  |
|  | * Flexion/Extension/Hyperextension
 |  |
|  | * Adduction/Abduction
 |  |
|  | * Pronation/Supination
 |  |
|  | * Retraction/Protraction
 |  |
|  | * Elevation/Depression
 |  |
|  | * Rotation/Circumduction
 |  |
|  | * External Rotation/Internal Rotation
 |  |
|  | * Lateral Flexion (side-bending left or right
 |  |
| 8.2 | Compare and contrast the various movements of the foot/ankle and their counter-movements Inversion/Eversion, Dorsiflexion/Plantarflexion, Pronation/Supination. |  |
| 8.3 | Compare and contrast the lateral movements of the wrist/hand and their counter-movements Radial Deviation/Ulnar Deviation, Opposition. |  |

## Benchmark 9: Demonstrate fundamental terms associated with performance enhancement and conditional principles.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 9.1 | Define and interpret cardiovascular endurance,muscular endurance, power, speed and strength. |  |
| 9.2 | Apply adaptation, overload, specificity, reversibility and perodizaton conditioning principles to performance. |  |

## Benchmark 10: Examine the role the cardiovascular/respiratory systems have on fitness/athletic performance

### Competencies

| **#** | **Description** | **rating** |
| --- | --- | --- |
| 10.1 | Describe the anatomy of the cardiovascular/respiratory systems: |  |
|  | * Heart-4 chambers, 4 valves, 4 blood vessels
 |  |
|  | * Lungs-oxygen exchange from alveoli to capillaries
 |  |
| 10.2 | Identify vital signs related to the cardiovascular/respiratory system: |  |
|  | * Describe and accurately measure blood pressure (systolic/diastolic)
 |  |
|  | * Describe and accurately measure respiratory rate
 |  |
|  | * Describe and accurately measure pulse rate
 |  |
|  | * Describe lung volume
 |  |
|  | * Describe the importance of cardiac output, stroke volume, and heart rate during exercise
 |  |
| 10.3 | Examine different types of tests used to quantify cardiovascular fitness o VO2max: |  |
|  | * Harvard step test
 |  |
|  | * 12 minute run test
 |  |
| 10.4 | Describe the effects exercise has on the cardiovascular/respiratory systems: |  |
|  | Immediate effects of exercise (heart rate, ventilation) |  |
|  | Long term effects of exercise (heart rate, stroke volume, cardiac output) |  |
| 10.5 | Compare and contrast aerobic/anaerobic training. |  |
| 10.6 | Examine the importance of a warm up/cool down in a training program. |  |
| 10.7 | Examine different cardiovascular training methods: |  |
|  | * Interval
 |  |
|  | * Fartlek
 |  |
|  | * Circuit
 |  |
|  | * Continuous
 |  |
| 10.8 | Apply general conditioning principles to improve cardiovascular fitness: |  |
|  | * Rate of perceived exertion (BORG scale)
 |  |
|  | * Target heart rate
 |  |

## Benchmark 11: Examine the importance of flexibility in fitness/athletic performance.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 11.1 | Explain the general guidelines of flexibility. |  |
| 11.2 | Define ROM and how it relates to fitness/athletic performance. |  |
| 11.3 | Identify the benefits of flexibility: |  |
|  | * Decrease risk of injury
 |  |
|  | * Reduce muscle soreness
 |  |
|  | * Improve muscular balance and postural awareness
 |  |
| 11.4 | Demonstrate proper timing of flexibility techniques (before/after activity). |  |
| 11.5 | Identify the different methods to increase flexibility (static stretching, ballistic stretching, dynamic stretching, proprioceptive neuromuscular facilitation stretching). |  |
| 11.6 | Explain the safety/effectiveness of each method of increasing flexibility (static stretching, ballistic stretching, dynamic stretching, proprioceptive neuromuscular facilitation stretching PNF). |  |
| 11.7 | Demonstrate the proper techniques of static stretching for all major muscle groups. |  |

## Benchmark 12: Describe basic body composition.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 12.1 | Compare and contrast the most common methods for analyzing body composition (Hydrostatic, Bod Pod, Calipers, BIA, Infrared). |  |
| 12.2 | Describe the parameters of safe weight loss and weight gain. |  |

## Benchmark 13: Examine the importance of fluid replacement and hydration.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 13.1 | Examine the importance of water and its role in the body. |  |
| 13.2 | Explain the correct process of hydration during athletic activity. |  |
| 13.3 | Identify the dangers of inappropriate hydration techniques. |  |
| 13.4 | Identify the dangers of dehydration. |  |
| 13.5 | Compare and contrast advantages and disadvantages of sports drinks. |  |
| 13.6 | Identify the role of sports drinks in hydration. |  |
| 13.7 | Discuss the correct chemical make-up of sports drinks. |  |
| 13.8 | Discuss the dangers of energy drinks and their effects on the body. |  |

## Benchmark 14: Identify the components of a pre and post event meal and explain the value of each.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 14.1 | Describe recommended nutrient percentages of pre and post event meals. |  |
| 14.2 | Identify foods that are easily digested. |  |
| 14.3 | Identify food that should be avoided. |  |
| 14.4 | Identify when pre and post event meals should be eaten. |  |
| 14.5 | Explain the process of carbohydrate loading and discuss when it is most effective. |  |

## Benchmark 15: Recognize disorders associated with nutrition.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 15.1 | Identify signs, symptoms, and effects of Anorexia Nervosa. |  |
| 15.2 | Identify signs, symptoms, and effects of Bulimia Nervosa. |  |
| 15.3 | Identify signs, symptoms, and effects of the Female Athlete Triad. |  |

## Benchmark 16: Compare and contrast the physiological and psychological effects of ergogenic aids.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 16.2 | Define ergogenic aid. |  |
| 16.3 | Recognize the effects and possible dangers of common ergogenic aides (Stimulants, Narcotics, Anabolic steroids, Beta blockers, Diuretics, Human growth hormone, Anesthetics, Corticosteroids, Creatine). |  |

## Benchmark 17: Discuss the inflammatory response and the healing process with injury classification.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 17.1 | Compare and contrast acute and chronic injuries. |  |
| 17.2 | Discuss the purpose of inflammation. |  |
| 17.3 | Categorize the stages of acute injury healing (Acute-Inflammation Phase, Subacute-Repair & Regeneration Phase, & Remodeling-Maturation Phase). |  |
| 17.4 | Explain the process involved in the Acute (Inflammation) Phase of injury healing. |  |
| 17.5 | Describe the signs and symptoms of inflammation (heat, redness, swelling, pain, loss of function). |  |
| 17.6 | Understand the time frame of the Acute (Inflammation) Phase. |  |
| 17.7 | Identify and explain the 5 stages of healing. |  |
| 17.8 | Describe first, second and third degree injuries. |  |

## Benchmark 18: Explore therapeutic modalities.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 18.1 | Identify the purpose of therapeutic modalities. |  |
| 18.2 | Explain how to properly select the use of therapeutic modalities. |  |
| 18.3 | Identify the Gate Control Theory as a principle of pain management and describe the physiological process of the theory. |  |

## Benchmark 19: Demonstrate an understanding of the physiologic effects, indications, contraindications, and application of therapeutic modalities and rehabilitation techniques .

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 19.1 | Describe the physiologic effects, indications, contraindications, and application of Cryotherapy (Ice packs /Prepare an ice bag/pack, Ice massage, Ice immersion, Cold whirlpool, Chemical coolant. Apply E-stim and ultrasound. Describe the R.I.C.E. method for acute injuries /Apply a compression wrap to an ankle/Apply a compression wrap to a knee).  |  |
| 19.2 | Describe the physiologic effects, indications, contraindications, and application of Thermotherapy (Heat packs, Ultrasound, Hot whirlpool, Contrast baths, Electrotherapy, Massage). |  |
| 19.3 | Demonstrate manual therapy (mobilization, myofascial release, soft tissue mobilization use to treat injuries. |  |

## Benchmark 20: Discuss the components and goals of a rehabilitation program.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 20.1 | Identify the general guidelines of a rehabilitation program: (Individualize each program, be as aggressive as possible without causing harm, Use a variety of equipment, Common mistakes, Appropriate goal setting, Components of a rehabilitation program). |  |
| 20.2 | Identify Phase I of a rehabilitation program: |  |
|  | * Body conditioning/maintain cardiovascular fitness throughout all phases
 |  |
|  | * Control swelling
 |  |
|  | * Control pain
 |  |
|  | * Increase range of motion
 |  |
| 20.3 | Identify Phase II of a rehabilitation program: |  |
|  | * Restore full range of motion
 |  |
|  | * Strength, endurance, speed, power in all muscle groups
 |  |
|  | * Strength, endurance, speed, power in all muscle groups
 |  |
| 20.4 | Identify Phase III of a rehabilitation program: |  |
|  | * Functional and sport specific skills
 |  |
|  | * Restore balance and proprioception
 |  |
|  | * Return to sport
 |  |
| 20.5 | Relate the different exercise principles to rehabilitation/strength (SAID, Overload,Isometric/isotonic/isokinetic, Eccentric/concentric, Closed chain/open chain, Plyometrics). |  |
| 20.6 | Analyze and assess gait patterns |  |

## Benchmark 21: Identify the psychological implications of an injury, overall conditioning and exercise anorexia has to an athlete. Click or tap here to enter text.

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 21.1 | Examine the psychological stages impact the rehabilitation components and understanding how the stages impact response to pain, return to sport, etc. |  |
| 21.2 | Understanding how head injuries can alter the psychological balance of emotions for individuals. |  |
| 21.3 | Understand how psychology relates to overall fitness and conditioning of individuals.  |  |
| 21.4 | Identify the psychological impact exercise anorexia has on overtraining for athletes. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

(785) 296-4908

pathwayshelpdesk@ksde.org



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

[https://www.ksde.org](https://www.ksde.org/)

The Kansas State Department of Education does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities and provides equal access to any group officially affiliated with the Boy Scouts of America and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: KSDE General Counsel, Office of General Counsel, KSDE, Landon State Office Building, 900 S.W. Jackson, Suite 102, Topeka, KS 66612, (785) 296-3201.