

KIN 856: Physical Bases for Coaching

Summer Term - 2017

Online Course Syllabus

Instructor Information

Tony Moreno PhD, CSCS

E-mail: morenoan@msu.edu

Phone: 734-487-2821

Course Description

The purpose of this on-line course is to provide coaches, athletic administrators, and recreational sport program directors essential knowledge with regard to principles of physical training and athletic performance. Specifically, this course will focus on basic musculoskeletal anatomy, exercise physiology, biomechanical aspects of human movement, and the integration of these disciplines to better understand their role in the physical development of the athlete. Because athlete development utilizes a multi-faceted approach, various educational resources will be employed by the instructor to help the student better grasp key concepts that enable the coach to implement an appropriate, effective, athlete-focused/coach driven model of physical training.

Course Objectives

Upon completion of the course, students will be able to:

- Demonstrate knowledge of the physical sciences and their relationship to sport performance and athlete development;
- Understand how the physical sciences are integrated into the design and implementation of training programs specific to sport performance and seasonal planning;
- Learn how to translate knowledge of the physical sciences into training practices that can be used on a daily basis in the coaching environment;
- Understand and value the role of integrated sport science and physical training on injury prevention in the sport setting;
- Demonstrate the ability to seek and utilize vital educational and practical resources to help develop and strengthen an essential knowledge base for sport performance enhancement and injury prevention.

Instructional Technology Requirements

We will use the Desire2Learn (D2L) platform to deliver and exchange information. This will obviously require internet access, and you should have adequate bandwidth to handle streaming video. Sometimes these platforms are not always 100% reliable. In terms of submitting and delivering materials, our MSU email accounts will be the default form of communication in the event D2L is not operable. Otherwise it is my intent to use the D2L format at all times for the administration of this course.

Texts, Readings, and Resources

There is no required text for this course, although some helpful supplemental texts are provided below. For each section, there will be mandatory assigned readings that will be pertinent to the projects required for this course, in addition to other supporting materials. These will be in the form of peer-review articles, internet resources, videos, and/or other media formats. The mandatory readings will be clearly noted and distinguished from any supplemental resources that can be used in support of assignments and projects. All mandatory and supplemental readings and resources will be provided throughout the semester for each section and will be made available on the D2L system. If there are problems with the D2L system then we will use the default MSU email system.

Supplemental texts (not required):

Conditioning for Strength and Human Performance, 2nd Edition

T. Jeff Chandler and Lee E Brown

Lippincott Williams & Wilkins

ISBN-13: 978-1451100846

ISBN: 1451100841

Essentials of Strength and Conditioning, 4th Edition

G. Gregory Haff and N. Travis Triplett

Human Kinetics

ISBN-13: 978-1492501626

ISBN-10: 149250162X

Sections and Course Content

This course will cover various topics, divided into 5 distinct sections. It should be mentioned that each section could be taught as an independent course, however it is the intent of this course to enable the student to understand how each of these individual sections are integrated into the physical preparation of the athlete. Therefore the intent is to focus on those vital and relevant components of these sections. This will enable the coach/practitioner to target and possess a deeper appreciation of the sport sciences, and their relative importance in creating and implementing physical training programs.

Introductory Week for KIN 856

Tentative Timeline: May 15 – May 21

We will use this time to become orientated with the purpose and direction of the course. During this period I will be asking about your educational background and experience, and sharing with you my background. In this way I feel I will help make stronger connections between the course materials and your potential career path. It will also give us a chance to get comfortable with the Desire 2 Learn online platform before we start getting into the various sections.

Section I: Musculoskeletal anatomy, muscle function, and movement

Tentative Timeline: May 22 – June 4

For this section, emphasis will be placed on understanding musculo-skeletal anatomy and function. Levels of mobility and action are in part determined by skeletal structures and their relationship with the visco-elastic properties of muscle, tendon, ligament, and connective tissue. Further, understanding the terminology used to qualitatively describe movement will help establish a strong base from which one can evaluate and analyze the specific movements in sport, and use this information to help design physical training programs and understand various mechanisms of injury.

Section II: Biomechanics and Technique:

Tentative Timeline: June 5 – June 19

Biomechanics is the application of mechanics to living things. Force underlies the initiation of the actions that influence sport technique. For this section emphasis will be placed on understanding key kinematic and kinetic concepts that underlie successful sport performance and aspects of injury. Biomechanics as a discipline, also enables the coach the opportunity to critically analyze performance from a quantitative perspective for greater precision in making those coaching decisions that impact optimal coaching practices and ultimately sport competition.

Section III: Sport Physiology

Tentative Timeline: June 19 – July 2

Exercise physiology is a broad discipline, but our emphasis will be on understanding and training the various energy systems engaged during sport competition. Students will need to be able to determine which energy system is predominant for their sport or activity of interest and further, understand how to develop those respective physiological systems. Physiological inputs heavily regulate the biomechanical outputs, thus it is important for the coach practitioner to realize how to create effective training conditions for optimal performance and suitable recovery. Effective design of physical training programs is strongly dependent upon the coach's knowledge of physiological principles and their relationship to the particular sport, position and/or individual.

Re-focus Week:

Tentative Timeline: July 3 – July 9

This time will be used to re-generate ideas and focus on upcoming projects or assignments in this course.

Section IV: Performance Enhancement and Periodization:

Tentative Timeline: July 10 – August 7th

Programming to enhance physical performance is a critical component for sport achievement. Effective strength and conditioning programs must be implemented in a safe manner with consideration to growth, maturation, training age, and objectives. With an understanding of movement anatomy, biomechanical principles, and exercise physiology, coaches will be able to create a basic performance enhancement program. It is this integration of sub-disciplines and the introduction of various training methods that will assist in the creation of successful strength and conditioning programs.

Selecting the appropriate exercise, order of exercise, volume of training, and rest are critical to success, therefore periodization as a concept will also be introduced. Periodization is the organization of training in order to optimize performance. This section will help you as coach acquire a better understanding of how to program the various components of performance into a physical training model.

Section V: Considerations for Injury Prevention

Tentative Timeline: August 8 – August 18

Programming for performance enhancement shares an intimate bond with programming for injury prevention. Performance training is done in order to develop greater muscular power, strength, endurance, anaerobic capacity, mobility, and dexterity. At the same time skeletal and muscular structures inherit greater mechanical integrity as conditioning is implemented to minimize the effects of fatigue. Consideration for growth, maturation, training age, and objectives must also be considered with injury prevention to prevent chronic overuse syndromes and determine the appropriateness of loading developing or inexperienced musculoskeletal structures. Further, coaches will appreciate the

importance of integrating neuromuscular training into their programming as a method of reducing the incidence of lower-extremity injury, while at the same time enhancing athleticism.

Assignments

For this course, understanding and application of the physical science principles in an applied manner is essential for the coach practitioner. Assessments and grades for KIN 856 are to be determined based upon your performance throughout the semester on section quizzes, assignments, participation in discussion forums, and the required 2-part project. There are **no** exams for this course. Assignments are listed below:

Introductory Exercise (1):

- Share your educational background, coaching experience, and course expectations.

Quizzes (5):

- Musculoskeletal Anatomy, Muscle Function and Movement
- Biomechanics and Technique
- Sport Physiology
- Performance Enhancement and Periodization
- Considerations for Injury Prevention

Section Assignments (3)

- Movement analysis
- Biomechanics - Mechanical analysis
- Exercise Physiology – Metabolic analysis

Project (two parts; n=1):

- Rationale for exercise/activity selection: Strength/power/performance and metabolic conditioning
- Programming: Periodization for strength/power/performance and metabolic conditioning

Discussion Forums (2):

- Article Discussions - TBD

Throughout the **introductory week**, specific rubrics will be provided that detail the general format and expectations for each assignment. Quizzes will be distributed toward the end of each section with the expectation that they be submitted within a specific window of time. These dates will also be specified in the next few days.

Course Grading

Grades in KIN 856 will be determined by your performance on section quizzes, assignments, participation in discussion forums, and the required 2-part project. For this course I will utilize an assessment method that will assign a level/grade based upon your ability to grasp and apply the concepts covered in this course. These levels, *Mastered; Acquired or; Needs further improvement*, and their respective expectations will be defined with a rubric for each assignment. These rubrics will be provided during the introductory week. For purposes of numeration, *Mastered* level effort represents

“A” (4.0 gpa) level accomplishment, while *Acquired* level effort represents “B” (3.0 gpa) level accomplishment. For assignments or quizzes that do not meet appropriate levels of effort or accomplishment, students will be assigned the *Needs further improvement* level which corresponds with a failing grade by not achieving the expectations of a graduate-level course.

For this course, various resources will be drawn upon to help you as coach acquire a deeper understanding of how the physical sciences are integrated to provide those practical skills needed to directly impact the physical preparation of an athlete and their respective sport program. You are expected to use the resources provided, and heavily encouraged to draw upon your own experiences as coach or administrator. In addition it is suggested to use external supporting materials as it is through this process that *mastery* of the course can be truly accomplished.

Requirements for achieving a grade of 4.0:

Introductory Exercise: Submission of written document.

Section Quizzes: ‘Mastered’ level (85%) in 4 of 5 quizzes. No more than 1 quiz at the ‘Acquired’ level (70%).

Section Assignments: ‘Mastered’ level achieved for written documents. ***Rubrics will be provided with the assignment information.***

Projects: ‘Mastered’ level of achievement in both parts of the project.

Rubrics will be provided with the assignment information.

Discussion Forums: Provide original content to discussion forums and provide ‘impressionable’ statements to the student posts.

Requirements for achieving a grade of 3.5:

Introductory Exercise: Submission of written document.

Section Quizzes: ‘Mastered’ level (85%) in 3 of 5 quizzes. No more than 2 quizzes at the ‘Acquired’ level (70%).

Section Assignments: ‘Acquired’ level achieved for written documents. ***Rubrics will be provided with the assignment information.***

Project: ‘Mastered’ level of achievement in 1 of 2 parts. ‘Acquired’ level achieved in the 2nd part.

Rubrics will be provided with the assignment information.

Discussion Forums: Provide original content to discussion forums and provide ‘impressionable’ statements to the student posts.

Requirements for achieving a grade of 3.0:

Introductory Exercise: Submission of written document.

Section Quizzes: ‘Acquired’ level (70%) in 4 of 5 quizzes. No more than 1 quiz with a score of below 70%.

Section Assignments: ‘Acquired’ level achieved for written documents. ***Rubrics will be provided with the assignment information.***

Project: ‘Acquired’ level of achievement in both parts of the project

Rubrics will be provided with the assignment information.

Discussion Forums: Contribute original content to discussion forums.

Requirements for achieving a grade of 0.0:

Failure to achieve the minimal standards set forth for receiving a grade of 3.0.

* Unless students have permission from the instructor, assignments that are submitted late will not be able to achieve a ‘Mastered’ rating. The highest possible score a student will be able to achieve will be at the ‘Acquired’ level.

Submitting Assignments

Unless otherwise specified, assignments should be submitted using the specified assignment dropboxes set up in D2L.

- Submit all assignments in the most recent version of Microsoft Word (.docx format) unless otherwise noted.
- All files must be appropriately labeled, using the following structure:
KIN856-AssignmentName-YourLastName.docx.
- If the dropbox does not work, please send the file as an attachment to morenoan@msu.edu

Late Assignments

On-line courses enable students to work at their own pace, however it is important to keep in time with the Sections as they are offered throughout the term. If you feel that for some reason your assignment will be late, please notify the instructor at least 3 days in advance so that amendments to the schedule can be made on your behalf. If the instructor is not notified in advance, the level of grade achieved will drop to the next level for every day the assignment is late. If the assignment is more than two days late obviously it will revert to a 0.0 grade.

Communication and the D2L Learning Platform

- E-mail will be the primary method of communication in this course. Email is checked daily and at least 3-4 times/day. I will make attempts to respond in a timely manner. Please use your MSU email account as the primary means of communication with me.
- Check your email regularly to receive updates or course amendments. I do not anticipate altering the current schedule but it is possible that potential circumstances can change items as they are provided in the syllabus.
- If you could please, place 'KIN 856' in the subject line so that I may address your query as quickly as possible.

IMPORTANT: Desire2Learn (D2L) is the online platform that will be used for this course. I will be “frank” in letting you know this is the first time I have used this system and I will likely need some time becoming accustomed to its features. I am sure D2L has multiple features and is reliable for the most part, however in the event there are problems with D2L, our MSU email accounts will be the default for submitting assignments.

Academic and Professional Integrity

Items regarding academic integrity are published in the MSU Policies, Regulations and Ordinances Regarding Academic Honesty and Integrity. Topics include (a) the Spartan Code of Honor; (b) Integrity of Scholarship and Grades; (c) Student Rights and Responsibilities; (d) Guidelines for Integrity of Research and Responsibilities; (e) Plagiarism. KIN 856 students are expected to understand and abide by these policies and guidelines. Please read the following elements of the Michigan State University Policies, Regulations and Ordinances Regarding Academic Honesty and Integrity:

1. Integrity of Scholarship and Grades:

<https://www.msu.edu/unit/ombud/academic-integrity/>

2. Michigan State Plagiarism Policy:

<https://msu.edu/unit/ombud/academic-integrity/plagiarism-policy.html>

Mandatory Reporting

Essays, journals, and other materials submitted for this class are generally considered confidential pursuant to the University's student record policies. However, students should be aware that University employees, including instructors, may not be able to maintain confidentiality when it conflicts with their responsibility to report certain issues to protect the health and safety of MSU community members and others.

Accommodations for Students with Disability

Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at rcpd.msu.edu. Once your eligibility for an accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form. Please present this form to me at the start of the term and/or two weeks prior to the accommodation date (test, project, etc.). Requests received after this date may not be honored.