

PET5936: SCIENCE OF TRAINING HIGH PERFORMANCE ATHLETES: Part 1.
Developing physiological capacity

- **Instructor:** Dr. Christine Brooks
- **Email:** cmbrooks@ufl.edu
- **Phone:** 321-720-2705
- **Lecture Room:** Online
- **Office hours:** Via email or Skype

COURSE DESCRIPTION

This course overviews the theory and practice of sport training methodologies for enhancing the athlete's physiological capacity. We begin by examining how to configure a sport-specific physical work capacity from the five foundational motor performance abilities of endurance, strength, speed, coordination and flexibility. The impact of growth, maturation and genetics is factored into the discussion. Other broad topics include:

- how the body adapts to a training stimulus
- principles of training theory
- development of sport specific strength, speed and endurance
- how the energy systems work and are fueled
- Overtraining and fatigue
- mechanics of the training plan.

The importance of a balanced approach to sport and life is emphasized throughout the course, with specific emphasis on the principle encompassed in the **Hippocratic Oath** of “doing no harm”.

COURSE OBJECTIVES

At the completion of this course students will be able to:

- demonstrate knowledge and understanding of important physiological and training theory principles as they apply to training athletes of any age to reach

their optimum athletic potential

- recognize how to develop fundamental and derive motor performance abilities of athletes generally, and in a specific sport (or positions within a team)
- locate and critically evaluate recommended performance evaluation practices for a specific sport and athletes
- understand the physiological theory of performance analysis tests that assess strength, power, energy system capacity and lactate test data
- review training programs and evaluate whether they are physiologically sound according to the specific needs of an athlete
- design a comprehensive annual training program for an athlete in a specific sport.

PREREQUISITE KNOWLEDGE

While this course is 'intermediate' in terms of coaching science training physical capacity theory, there are no prerequisites for this course. However, experience with sport, either as a coach and/or athlete, and desire to bring science into modern coaching practices is important.

TEXT MATERIALS AND E-LECTURES

All reading materials, study guides, video lecture modules and practice quizzes are packaged together. Reading resources are accessible via a link on the opening screen of each e-lecture module.

COURSE TOPICS:

- **Unit 1:** Physiological development through the athlete's lifespan
- **Unit 2:** Energy systems and motor performance abilities
- **Unit 3:** Training science
- **Unit 4:** Sport specific strength and power
- **Unit 5:** Fatigue

- **Unit 6**: Overtraining
- **Unit 7**: Preparing the athlete for competition

GENERAL COURSE POLICIES

Attendance: This is an online course. There is no attendance requirement.

Assessments: All exams, quizzes, forums and assignments must be completed on time. A 5 point penalty will be assessed for a late assessment.

Technology: Contact the UF Computing Help Desk and e-Learning Support Services (www.helpdesk.ufl.edu/) if you have any technical issues with CANVAS, or your email.

Communication: Check announcements and course-related postings on CANVAS. This is how I will communicate with you throughout the semester.

Academic Honesty: As a UF student, you have committed to the following pledge: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. " Please complete all work independently unless the instructor provides explicit permission for you to collaborate on course tasks. It is your responsibility to know and comply with all UF policies and procedures regarding academic integrity and the Honor Code. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see:

<http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.

Course Examinations and Grading: Please ensure that the scores posted in CANVAS are accurate. Report discrepancies **prior to the last day of classes**. Grading will be based on the following assessments

- 8 Quizzes 30% of final grade.
- Forums: 40% of final grade
- 1 Essay Assignment = 30% of final grade

Letter Grade	Percent of Total Points	GPA Impact
A	90.00 -100%	4.0
B+	87.00 - 89.99%	3.33
B	80.00 – 86.99%	3.0
C+	77.00 – 79.99%	2.33
C	70.00 – 76.99%	2.0
D+	67.00 – 69.99%	1.33
D	60.00 – 66.99%	1.0
E	<60.00%	0

COURSE EVALUATION

Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at:


<https://evaluations.ufl.edu>.


Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu>.






COUNSELING AND MENTAL HEALTH SERVICES



Phone number and contact for university counseling services and mental health services: 392-1575, or visit: <http://www.counseling.ufl.edu/cwc/Default.aspx>

COURSE SCHEDULE

Week # and date	Weekly assignments
Unit 1: Physiological development through the athlete's lifespan	
Week 1 Aug 21 - 27	<ol style="list-style-type: none"> 1. Reading reference  2. Read Announcement 1. 3. <i>Review the following lessons</i> <ol style="list-style-type: none"> 1. Introduction to high performance coaching

	<ul style="list-style-type: none"> 2. Motor performance abilities 3. Growth and maturation 4. Complete Forum 1
<p style="text-align: center;">Week 2 Aug 28 – Sept 3</p>	<ul style="list-style-type: none"> 1. Reading reference 2. Read Announcement 2. 3. <i>Review the following lessons</i> 4. Critical training periods 5. Long term athlete development 6. Factors affecting the athlete's potential 7. Body structures important for performance 4. Complete Unit 1 QUIZ (PW is Quiz1)
Unit 2: Energy systems and motor performance abilities	
<p style="text-align: center;">Week 3 Sept 4 - 10</p>	<ul style="list-style-type: none"> 1. Reading reference 2. Read Announcement 3. 3. <i>Review the following lessons</i> 8. The athlete's energy supply 9. Energy system, power and diet 10. Aerobic capacity 11. Strength 4. Complete Forum 2
<p style="text-align: center;">Week 4 Sept 11 - 17</p>	<ul style="list-style-type: none"> 1. Reading reference 2. Read Announcement 4. 3. <i>Review the following lessons</i> 12. Physiology of strength 13. Anaerobic capacity 14. Coordination: 15. Flexibility 4. Complete Unit 2 Test: PW is: Quiz2
Unit 3: Training science	
<p style="text-align: center;">Week 5 Sept 18 – 24</p>	<ul style="list-style-type: none"> 1. Reading reference  2. Read Announcement 5. 3. <i>Review the following lessons</i> 16. Introduction to the 2nd half of the course 17. Biology of adaptation 18. Core training principles

	4. Complete Forum 3
<p>Week 6 Sept 25 – Oct 1</p>	<ol style="list-style-type: none"> 1. Reading reference  2. Read Announcement 6. 3. <i>Review the following lessons</i> 19. Training stimulus 20. Periodization theory 4. Complete Unit 3 test : PW is Quiz3
Unit 4: Sport specific strength and power	
<p>Week 7 Oct 2 – Oct 8th</p>	<ol style="list-style-type: none"> 1. Reading reference  2. Read Announcement 7. 3. <i>Review the following lessons</i> 21. Strength and power basic concepts 22. Principle of specificity 4. Complete Forum 4
<p>Week 8 Oct 9 – 15</p>	<ol style="list-style-type: none"> 1. Reading reference  2. Read Announcement 8. 3. <i>Review the following lessons</i> 23. Peripheral strength adaptation 24. Central strength adaptations 4. Complete Unit 4 test: PW is: Quiz4
Unit 5: Fatigue	
<p>Week 9 Oct 16 – 22</p>	<ol style="list-style-type: none"> 1. Reading reference  2. Read Announcement 9. 3. <i>Review the following lessons</i> 25. Fatigue theories 26. Fatigue due to low fuel supplies 27. Fatigue due to acidity 28. Fatigue due to temperature 4. Complete the Unit 5 test: PW is: Quiz5
Unit 6: Overtraining	
<p>Week 10 Oct 23 - 29</p>	<ol style="list-style-type: none"> 1. Reading reference  2. Read Announcement 10. 3. <i>Review the following lessons</i> 29. Endocrine system basics 30. Autonomic nervous system

	<ul style="list-style-type: none"> 31. Fundamentals of overtraining 4. Complete Forum 5
<p style="text-align: center;">Week 11 Oct 30 – Nov 5</p>	<ul style="list-style-type: none"> 1. Reading reference  2. Read Announcement 11. 3. <i>Review the following lessons</i> 32. Heart rate and overtraining 33. Monitoring overtraining 4. Complete Unit 6 test: PW is Quiz6
Unit 7: Preparing the athlete for competition	
<p style="text-align: center;">Week 12 Nov 6 - 12</p>	<ul style="list-style-type: none"> 1. Reading reference  2. Read Announcement 12. 3. <i>Review the following lessons</i> 34. Managing training effects 35. Tapering and Training load quantification 36. How to assemble the yearly plan 4. Complete the Unit 7 test: PW is Quiz7
Unit 8: Consolidating your knowledge	
<p style="text-align: center;">Week 13 Nov 13 - 19</p>	<ul style="list-style-type: none"> 1. Reading reference - None 2. Read Announcement 13. 3. <i>Begin the Final Assignment</i> 4. Complete Forum 6
<p style="text-align: center;">Week 14 Nov 20 – Dec 6</p>	<ul style="list-style-type: none"> 1. Reading reference - None 2. Read Announcement 14. 3. <i>Continue with the Final Assignment</i> 4. Post assignment by midnight Dec 6th
You have completed this course. Congratulations!	