

<p>Course Name: KNPE 327/3.0 Exercise Physiology Laboratory</p>	<p>Course Instructor: Dr. Michael Tschakovsky</p>	<p>Contact Hours: Winter 2021 – Remote Delivery</p>								
		<p>Prerequisite: KNPE 125/3.0, KNPE 225/3.0, KNPE 227/3.0 Level 3 or above in a KINE or PHED Plan</p>								
		<p>Exclusions:</p>								
<p>Course Description:</p> <p>This lecture/laboratory experience is designed to establish student understanding of, and technical skills in, the measurement of human physiological responses and performance capacity in exercise. Students will learn the technical and theoretical basis for such measurement, and develop familiarity with tests of physiological function during rest and exercise. This is intended to prepare them for experiences in human performance, clinical and medical settings.</p>		<p>Course Texts:</p> <p>The Top Hat interactive learning platform provides:</p> <ul style="list-style-type: none"> • Written and illustrated explanations and supplemental discussions of important concepts for each UNIT of the course. • Preparatory reading for laboratory sessions. <p>In addition, relevant scientific literature reading will be posted on the course onQ site.</p>								
<p>Intended Student Learning Outcomes:</p> <p>At the conclusion of this course students should be able to: (Do What, With/To What, For What Purpose)</p> <ol style="list-style-type: none"> 1. Apply <u>principles of human performance assessment</u> to obtain valid and reliable responses and measures during exercise testing. 2. Understand and Explain <u>physiological responses to exercise</u> to inform interpretation of exercise testing responses. 3. Explain and Apply <u>principles of instrumentation, calibration and troubleshooting</u> to detect and correct technical problems that can compromise exercise testing results. 4. Critically Evaluate <u>scientific literature on exercise physiology and exercise testing</u> to effectively assess advances in exercise testing techniques and 		<p>Course Evaluation:</p> <table border="0"> <tr> <td>Lab sessions (8)</td> <td>15%</td> </tr> <tr> <td>Lab reports (4)</td> <td>60%</td> </tr> <tr> <td>Lab Presentation</td> <td>15%</td> </tr> <tr> <td>Assignment</td> <td>10%</td> </tr> </table>	Lab sessions (8)	15%	Lab reports (4)	60%	Lab Presentation	15%	Assignment	10%
Lab sessions (8)	15%									
Lab reports (4)	60%									
Lab Presentation	15%									
Assignment	10%									

<p>interpretation of exercise testing responses.</p> <p>5. Compose <i>laboratory reports</i> to effectively communicate exercise testing results and their interpretation.</p> <p>6. Integrate <i>human performance assessment expertise developed in this course</i> to independently explore physiological responses to exercise or other challenges.</p>	
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

Course Outline

Principles of Measuring and Reporting Human Physiological Responses to Exercise	Incremental Exercise Test: Aerobic Function in Exercise / Maximal aerobic capacity
Data Acquisition, Analysis and Presentation	Ventilatory Threshold
Measures of Reliability	Pulmonary Function in Rest and Exercise
Cardiovascular Response to Exercise	

Laboratory

Data Acquisition, Analysis and Presentation	Familiarization
Response to Exercise: Familiarization	Increased Dead Space and Resistance
Cardiovascular Response to Exercise	Aerobic Function in Exercise
Reliability and Physiology	Ventilatory Threshold
Pulmonary Function in Rest and Exercise	VO2 Max
Create Data Set demonstrating Systematic Error	Data for Laboratory Report
Reliability Measures / Measurement Error	Response to Alveolar Ventilation Disturbance in Exercise
Sex Differences in Cardiovascular Response to Exercise	Create Data Set with low inter-individual range vs. with high inter-individual range and compare ICC's
Valid Data Collection vs. Sources of Error Problem	Valid Data Collection vs. Sources of Error Problem
Laboratory Report Writing	Figure and Figure Legend Creation