**Course Name:** KNPE 429/3.0  
**Course Instructor:** Not Offered in 2019-2020  
**Contact Hours:**  
Lectures: 2 x 1.5 hrs/wk x 12 weeks  
Labs: 1 x 3 hrs/wk x 8 weeks  
**Prerequisite:**  
KNPE 125/3.0, KNPE 225/3.0; and KNPE 227/3.0  
Level 3 or above in a KINE or PHED plan.  
**Exclusion:**

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**Course Description:**
The focus of this course is on (integrative) aspects of cardiovascular and respiratory adjustments related to exercise, as well as the effects of exercise training and cardiorespiratory disease on these adjustments. These will be examined in the context of cardiorespiratory limitations to human performance during exercise in health and disease. Special topics include: impact of muscle oxygenation on metabolic and contractile function; mechanisms of exercise intolerance in select cardiorespiratory diseases (e.g., chronic obstructive pulmonary disease and chronic heart failure); mechanisms of pharmacological and non-pharmacological enhancement of exercise tolerance/performance in health and disease.

**Course Texts:**
There is no assigned textbook for this course.

**Course Notes:**
Course material will be available on the course onQ site.

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**Course Objectives:**
- Identify, Illustrate and Describe: **basic facts, definitions, details and elemental concepts of cardiovascular and respiratory support of exercising skeletal muscle** to support physiological literacy.
- Explain and Illustrate: **important integrated cardiovascular and respiratory responses to exercise** to inform expertise in integrative cardiovascular and respiratory exercise physiology.
- Apply **key physiological models** to guide prediction and interpretation of cardiovascular and respiratory responses in support of exercising muscle.
- Evaluate and Interpret **scientific literature** to facilitate evidence-based understanding of advances in cardiovascular and respiratory exercise physiology.

**Course Evaluation:**
- Online Quizzes 12%
- Tests - 2 30%
- Final Exam 28%
- Assignments 30%
<table>
<thead>
<tr>
<th>Course Outline</th>
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<tr>
<td>Introducing oxygen delivery, demand matching and</td>
<td>Pulmonary determination of oxygen delivery at the muscle</td>
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<td>sensitivity of exercise tolerance/performance to</td>
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<td>muscle oxygenation</td>
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<td>Local determination of oxygen delivery at the</td>
<td>Dietary nitrate: ergogenic enhancement of oxygen delivery at the muscle.</td>
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<td>Cardiac determination of oxygen delivery at the</td>
<td>Pathological dysfunction of oxygen delivery to exercising muscle: COPD</td>
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