KIN 411  Fall, 2007  
Laboratory Experiences in Exercise Physiology (2 Credits)

Time

Lecture:  Monday  12:40 p.m. - 1:30 p.m. (IM Circle 137)

Labs:  Tuesday  (1) 12:40 p.m. - 3:30 p.m. (all lab sections in IM Circle 026A)
       (6)  4:10 p.m. - 7:00 p.m.

     Wednesday (2)  8:00 a.m.- 10:50 a.m.
       (3) 12:40 p.m. - 3:30 p.m.

     Thursday (4)  8:00 a.m.- 10:50 a.m.
       (5) 12:40 p.m. - 3:30 p.m.

Instructors
Jeremy Knous (sections 1,3; knousjer@msu.edu), Erin Kuffel (sections 2,4; kuffeler@msu.edu),
Lanay Mudd (sections 5,6; muddlana@msu.edu)

Textbooks  
Required:   ACSM's Guidelines for Exercise Testing and Prescription (7th ed.)
            Coursepack (Budget Printing, 974 Trowbridge Rd)

Course Description
Laboratory techniques for testing and evaluating individuals for aerobic fitness, muscular strength, and endurance,
body composition and other physiologic responses to exercise. Exercise program development for personal health
fitness.

Course Objectives
Students will be able to demonstrate knowledge of appropriate techniques and skills involved with exercise testing,
evaluation, and prescription.

Course Prerequisites
Students must either have completed, or currently be enrolled in KIN 310 (Physiological Bases of Physical Activity).
It is assumed that students will also have completed all chemistry, anatomy, and physiology requirements.

Evaluation
Attendance and Participation  15%
Quizzes /Homework  45%
Practical Exam  20%
Written Exam  20%

NOTE: It is expected that students will attend all lecture/lab sessions, take all quizzes/exams at the regular time, and turn in
assignments when they are due. Occasionally there are extenuating circumstances that may require a student to miss a class
session (Some may even be legitimate). It is the student’s responsibility to inform the instructor PRIOR TO the missed class.
If prior notice is not given, there will be no makeup sessions.

ACADEMIC DISHONESTY POLICY
Any student discovered receiving assistance from or giving assistance to another student on an exam or quiz or homework, or
cheating in any way on any exam or quiz or homework in this class will be given a final grade of 0.0 for the class. Any such
incident will also be reported to the Department and to the College and will go on file in the student’s academic record.
## KIN 411 Class Schedule
### Fall 2007

<table>
<thead>
<tr>
<th>Date (Week of)</th>
<th>Topics</th>
<th>Readings</th>
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<tbody>
<tr>
<td>August 27</td>
<td>Lecture - Introduction, terminology, calculations&lt;br&gt;Lab - Lab tour, equipment, calibration, ergometry</td>
<td>ACSM: Ch. 1, App. F</td>
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<tr>
<td>September 3</td>
<td>No Lecture (Labor Day Holiday)&lt;br&gt;Lab - EE assessment, metabolic equations</td>
<td>ACSM: App D&lt;br&gt;H/F: Ch. 7</td>
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<tr>
<td>September 10</td>
<td>Lecture - Blood Pressure, cardiovascular control&lt;br&gt;Lab - Blood pressure, rest, cycle, treadmill, heart rate</td>
<td>ACSM: Ch 3</td>
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<td>September 17</td>
<td>Lecture - Lung Volumes&lt;br&gt;Lab - Pulmonary function, height/weight, BodPod</td>
<td>ACSM: Ch. 3</td>
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<td>September 24</td>
<td>Lecture - Submaximal exercise testing&lt;br&gt;Lab - Submaximal cycle and treadmill tests</td>
<td>ACSM: Ch. 4,6</td>
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<td>October 1</td>
<td>Lecture - Anthropometry, body composition&lt;br&gt;Lab - Skinfolds, bioelectrical impedance analysis (BIA)</td>
<td>ACSM: Ch. 4&lt;br&gt;H/F: Ch. 9</td>
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<td>October 8</td>
<td>Lecture - Economy/efficiency&lt;br&gt;Lab - Submaximal field tests, economy/efficiency</td>
<td>H/F: Ch. 7</td>
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<td>October 15</td>
<td>Lecture - Electrocardiography (EKG)&lt;br&gt;Lab - EKG, rest and exercise</td>
<td>ACSM: Ch 6, App C</td>
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<td>October 22</td>
<td>Lecture - Graded exercise test (GXT)&lt;br&gt;Lab - Aerobic capacity tests</td>
<td>ACSM: Ch. 2,3,5,6</td>
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<td>October 29</td>
<td>Lecture - Graded exercise test (GXT)&lt;br&gt;Lab - Aerobic capacity tests</td>
<td>ACSM: Ch. 2,3,5,6</td>
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<td>November 5</td>
<td>Lecture - Anaerobic capacity&lt;br&gt;Lab - Wingate, vertical jump, lactate threshold</td>
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<td>November 12</td>
<td>Lecture - Other components of fitness&lt;br&gt;Lab - Muscular strength and endurance and flexibility</td>
<td>ACSM: Ch. 4,6</td>
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<td>November 19</td>
<td>Lecture - Exercise prescription&lt;br&gt;Lab - Exercise prescription, practice</td>
<td>ACSM: Ch. 2,3,7</td>
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<td>November 26</td>
<td>Lecture - Questions, review&lt;br&gt;Lab - Practice, practical finals</td>
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<td>December 3</td>
<td>Practical Final (no lecture)&lt;br&gt;Individually scheduled (bring subject)</td>
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<tr>
<td>December 13</td>
<td>Written Final Exam</td>
<td>12:45-2:45 p.m.&lt;br&gt;NO EXCEPTIONS!!</td>
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In addition to these assigned readings, homework, and quizzes, you will be given a series of assignments (entitled "scientific writing") designed to help you with your major lab report that is due 2 weeks after you complete a graded exercise test in March. Specific dates/details for the "scientific writing" sections will be given in class.
CAATE Competencies and proficiencies covered in this class:

NU-CP1 Demonstrate the ability to counsel a patient in proper nutrition. This may include providing basic nutritional information and/or an exercise and nutrition program for weight gain or weight loss. The student will demonstrate the ability to take measurements and figure calculations for a weight control plan (e.g., measurement of body composition and BMI, calculation of energy expenditure, caloric intake, and BMR). Armed with basic nutritional data, the student will demonstrate the ability to develop and implement a preparticipation meal and an appropriate exercise and nutritional plan for an active individual. The student will develop an active listening relationship to effectively communicate with the patient and, as appropriate, refer the patient to other medical professionals (physician, nutritionist, counselor or psychologist) as needed.

RM-C11 Explain the importance and use of standard tests, test equipment, and testing protocol for the measurement of cardiovascular and respiratory fitness, body composition, posture, flexibility, muscular strength, power, and endurance.

RM-C13 Identify and explain the various types of flexibility, strength training, and cardiovascular conditioning programs. This should include the expected effects (the body's anatomical and physiological adaptation), safety precautions, hazards, and contraindications of each.

RM-P1 Instruct the patient how to properly perform fitness tests to assess his or her physical status and readiness for physical activity. Interpret the results of these tests according to requirements established by appropriate governing agencies and/or a physician. These tests should assess:

RM-P1.1 Flexibility
RM-P1.2 Strength
RM-P1.3 Power
RM-P1.4 Muscular Endurance
RM-P1.5 Agility
RM-P1.6 Cardiovascular Endurance
RM-P1.7 Speed

RM-P2 Develop a fitness program appropriate to the patient's needs and selected activity or activities that meet the requirements established by the appropriate governing agency and/or physician for enhancing:

RM-P2.1 Flexibility
RM-P2.2 Strength
RM-P2.3 Power
RM-P2.4 Muscular Endurance
RM-P2.6 Agility
RM-P2.6 Cardiovascular Endurance
RM-P2.7 Speed
RM-CP1 Plan, implement, evaluate, and modify a fitness program specific to the physical status of the patient. This will include instructing the patient in proper performance of the activities and the warning signs and symptoms of potential injury that may be sustained. Effective lines of communication shall be established to elicit and convey information about the patient’s status and the prescribed program. While maintaining patient confidentiality, all aspects of the fitness program shall be documented using standardized record-keeping methods.

MC-C8 Explain the importance and proper use of a peak flowmeter or similar device in the evaluation and management of respiratory conditions.

MC-P4 Apply commonly used special tests and instruments (e.g., otoscope, stethoscope, ophthalmoscope, peak flowmeter, chemical “dipsticks” [or similar devices]) and document the results for the assessment of:

RM-P3 Instruct a patient regarding fitness exercises and the use of weight training equipment to include correction or modification of inappropriate, unsafe, or dangerous lifting techniques.

RM-C19 Explain the basic principles and concepts of home, school, and workplace ergonomics and their relationship to the prevention of illness and injury.

PA-C6 Describe the body’s responses to physical exercise during common diseases, illnesses, and the injury.