Academic Quality Assessment & Development (AQAD) Self-Study

Exercise Physiology Program

Department of Physical Therapy
College of Health Sciences
University of Massachusetts Lowell

April 2015
AQAD Self Study: Exercise Physiology Program

Department of Physical Therapy
College of Health Sciences
University of Massachusetts Lowell

April 2015

Committee Members:

Deirdra Murphy, DPT, MHA, MS
Associate Professor and Chair, Department of Physical Therapy

Cynthia Ferrara, PhD
Associate Professor and Director, Exercise Physiology Program, Department of Physical Therapy

Erika Lewis, PT, EdD, MS, CHT
Associate Professor, Department of Physical Therapy

JoAnn Moriarty-Baron, PT, DPT
Lecturer, Department of Physical Therapy

Andrea Mendes, PT, DPT
Visiting Lecturer, Department of Physical Therapy

Cover photo credits: left, UMass Lowell staff; center, Karen Angelo; right, UMass Lowell staff
Contents

I. Program Goals and Objectives Link to the Campus Mission and Strategic Priorities... 1
   University of Massachusetts Mission................................................................. 1
   University of Massachusetts Lowell Mission ...................................................... 1
   College of Health Sciences Mission................................................................. 2
   Department of Physical Therapy Mission........................................................ 2
   The Exercise Physiology Program........................................................................ 4
   Exercise Physiology Learning Outcomes.......................................................... 4
   History of the Exercise Physiology Program..................................................... 5
   Enrollment in Exercise Physiology Program..................................................... 5
   The EP/DPT Freshman-admit Program............................................................ 6

II. Program Ensures that Curriculum is Relevant, Rigorous, Current and Coherent ...... 8
   General Degree Requirements of the Exercise Physiology Program................ 8
   Exercise Physiology Freshman and Sophomore Year Curriculum.................... 11
   Exercise Physiology Junior and Senior Year Curriculum.................................. 12
   Curricular Content Evaluation........................................................................ 12
   Readiness for practice: the Clinical Practicum ................................................ 13

III. Program Ensures Faculty Quality and Productivity......................................... 15

IV. Program Ensures Teaching/Learning Environments that Facilitate Student Success . 17
   University Support for Student Success........................................................... 17
   College Support for Student Success............................................................... 18
   Classroom Management for Student Success .................................................. 18
   Academic Advising for Student Success........................................................ 19
   Social Engagement for Student Success.......................................................... 20
   Measurement of Student Outcomes................................................................. 20
   Retention and Graduation Rates....................................................................... 21
   Faculty and Student Course Evaluations......................................................... 22
   Practicum Instructor Evaluations..................................................................... 23
   Senior Student Exit Surveys............................................................................ 24
   Summary of the Senior Student Exit Surveys............................................... 25

V. Program Ensures that Resources are Used Wisely ...................................... 26
   Resource Management.................................................................................... 26
   Management of Human Resources and Specific Responsibilities .................. 26
   Physical Therapy Department Personnel....................................................... 26
   Department Chair............................................................................................ 27
   Exercise Physiology Program Director............................................................ 27
   Exercise Physiology Program Curriculum Committee Chair........................ 28
   Department of Physical Therapy Program Administrator............................. 28
   Tenure-Track Faculty...................................................................................... 28
   Lecturers (Non-Tenure Track).......................................................................... 28
   Adjunct Faculty............................................................................................... 28
Graduate Teaching Assistants ........................................................................................................ 29
Work-Study Students .......................................................................................................................... 29
Material Resources ............................................................................................................................ 29
   Equipment Resources in Exercise Physiology Laboratories .......................................................... 29
College and University Resources Available to Faculty and Students ........................................ 29
   Classrooms ..................................................................................................................................... 29
   Computer Services ......................................................................................................................... 30
   Faculty Offices ............................................................................................................................... 31
   Designated Study Areas .................................................................................................................. 31
   Student Resource Center ................................................................................................................ 31

VI. Program Assessment .................................................................................................................. 32
   Student Learning ................................................................................................................................. 32
      Student success .............................................................................................................................. 32
      Reasons students to switch to another major ................................................................................. 32
      Attracting and retaining underrepresented student populations ..................................................... 33
      Graduate success in the workplace ................................................................................................ 33
      Career goal accomplishment .......................................................................................................... 34
   Faculty Scholarly Productivity ............................................................................................................ 34
      Departmental research trajectory .................................................................................................. 35
      Capacity for access to available grant funding ............................................................................... 35
      Competitive infrastructure ............................................................................................................. 35
   Resource Management .................................................................................................................... 35
      Impact of courses taught by part-time or adjunct faculty on student learning and curricular coherence .......................................................................................................................... 35
      Compromise between class size and student engagement ............................................................. 35
      Compromise between the number of distance-learning sections and student engagement ....... 36
      Use of discretionary income (overhead generated by research grants) .......................................... 36
   Departmental Engagement .............................................................................................................. 36
      Faculty knowledge regarding colleagues’ work ............................................................................. 36
      Faculty share a vision and collective responsibility for the work of the Department .................... 37

Appendix A: Fall Syllabi
Appendix B: Spring Syllabi
Appendix C: CoASE Job Task Analysis Table
Appendix D: Student Practicum Evaluation Form
Appendix E: Faculty CVs
Appendix F: Faculty and Course Evaluation Form
Appendix G: Senior Student Exit Surveys
Appendix H: Lab Equipment, Weed Hall
I. Program Goals and Objectives Link to the Campus Mission and Strategic Priorities

University of Massachusetts Mission
(http://www.uml.edu/About/mission.aspx)

The University's mission is to provide an affordable and accessible education of high quality and to conduct programs of research and public service that advance knowledge and improve the lives of the people of the Commonwealth, the nation, and the world.

University of Massachusetts Lowell Mission
(http://www.uml.edu/About/mission.aspx)

In accordance with the UMass system's mission, the University of Massachusetts Lowell is a public research university committed to excellence in teaching, research and community engagement. The University is dedicated to transformational education that fosters student success, lifelong learning and global awareness. UMass Lowell offers affordable, experience-based undergraduate and graduate academic programs taught by internationally recognized faculty who conduct research to expand the horizons of knowledge. The programs span and interconnect the disciplines of business, education, engineering, fine arts, health, humanities, sciences and social sciences. The University continues to build on its founding tradition of innovation, entrepreneurship and partnerships with industry and the community to address challenges facing the region and the world.

The mission of the University of Massachusetts Lowell is to enhance the intellectual, personal and cultural development of its students through excellent, affordable educational programs. The University seeks to meet the needs of the Commonwealth today and into the future and supports the development of sustainable technologies and communities through its teaching, research, scholarship and engagement.

The University has identified five Pillars of Excellence as part of the Strategic Plan 2020 (http://www.uml.edu/2020/default.aspx). The Pillars are:

1. Transformational Education
   Providing experiential and trans-disciplinary learning to prepare UMass Lowell students for fulfillment and making a difference in the world.

2. Global Engagement and Inclusive Culture
   Dynamic, global collaborations around the world to support student and faculty exchanges, research and other entrepreneurial enterprises. These initiatives will contribute to the development of an inclusive campus culture.
3. **Innovative Research and Entrepreneurship**
   Fostering innovative and creative research and scholarship that seeks sustainable solutions to the major challenges in today’s world.

4. **Leverage our Legacy and our Place**
   UMass Lowell is a public enterprise committed to building on our legacy by creating partnerships, locally, regional, nationally and internationally that enrich and sustain the human experience.

5. **Entrepreneurial Stewardship in Higher Education**
   An entrepreneurial approach to stewardship of human, physical and financial resources will be the hallmark of UMass Lowell’s approach to building a healthy and sustainable future.

The vision for the University outlined in the Strategic Plan will differentiate the University by excellence in student recruitment and retention, teaching and learning, internationalization, inclusiveness, interdisciplinary collaborations, research and scholarship, entrepreneurship and innovative approaches to administration, technology and facility infrastructures.

**College of Health Sciences Mission**
(http://www.uml.edu/Health-Sciences/About/about.aspx)

The mission of the College of Health Sciences is to promote health of individuals, families, and populations in a diverse global society through excellence in teaching, research, scholarship, and service. Community and health care industry partnerships enable experiential learning activities to enhance the education of health care professionals and scientists.

The College accomplishes its mission of educating tomorrow's leaders for a healthier world in the following ways:

- Excellent academic programs in the health and environment professions that prepare graduates to practice their professions with knowledge and competence.
- Interdisciplinary research that increases students' understanding of health, disease and disability.
- A public university's commitment to community service, advancing prevention-based strategies in health and environmental policy.

The College is working to align itself with the mission of the University and the Pillars of Excellence as part of the Strategic Plan 2020.

**Department of Physical Therapy Mission**
(http://www.uml.edu/HealthSciences/PT/About/default.aspx)

The Department of Physical Therapy’s mission is to promote health and participation in a global society through:
• Teaching of theory and practice of physical therapy and exercise physiology in classroom and community-based setting preparing graduates to practice their chosen path with knowledge, competence, and respect for human well-being;
• Scholarship that advances multidisciplinary scientific research to provide educational and practical application of movement science; and
• Community service in partnership with local, regional, and national organizations advancing intervention and prevention-based strategies in health.

The Department is working to align itself with the mission of the University and the College of Health Sciences as part of the Strategic Plan 2020. The department has outlined short-term and long-term goals for the next 5 years as part of its own strategic plan. These goals include:

1. **Transformational Education**
   i. Expand on active and experiential learning within department courses by 5% by fall 2016.
   ii. Increase the retention rate for undergraduate Exercise Physiology students by 5% by spring 2019.
   iii. Increase the number of transdisciplinary educational opportunities and activities by 5% by spring 2019.

2. **Global Engagement**
   i. Increase the number of students who participate in international experiences by 50% by 2016.
   ii. Inventory the cultural competency of undergraduate and graduate students with a baseline score measured in Fall 2015.
   iii. Increase the aggregate score of cultural competency of undergraduate and graduate students (from a baseline measured in fall 2015) by 30% in 2020.

3. **Innovative Research and Entrepreneurship**
   i. Increase faculty community and network activities and engage advisory board members in department activities by spring 2015.
   ii. Increase department collaboration by 10% to secure extramural funding for faculty and student research by 2020.
   iii. Increase undergraduate involvement in research and exposure to research activities by 25% by fall 2016.

4. **Leverage Our Legacy and Place**
   i. Identify a model clinic to emulate in planning the development of a community Physical Therapy clinic by fall 2016.
   ii. Increase department visibility within the University, extending to alumni and community via marketing of department events, faculty research and achievements, student involvement, and alumni profiles in order to increase resources for the department by fall 2016.
   iii. Enhance our webpage by working with IT to add a virtual 360 tour of the labs, research areas, classrooms, and common areas by fall 2015.
   iv. Develop a working relationship with a major medical center by fall 2016.
5. **Entrepreneurial Stewardship**
   
i. Enhance collaboration between Physical Therapy and Exercise Physiology clubs to foster departmental, personal, and professional development as evidenced by at least one collaborative activity per semester beginning in the fall 2014.

   ii. Create mechanisms to promote faculty development in leadership and management skills by securing additional professional development funds and establishing mentoring relationships by fall 2018.

   iii. Increase role of the Advisory Board by fall 2015 to include fundraising for supporting department undergraduate and graduate programs.

The Exercise Physiology Program

The Exercise Physiology (EP) program, housed within the Department of Physical Therapy, contributes to the campus mission by the transmission of knowledge to its students. The Exercise Physiology program’s learning outcomes are based on the principles cited in the department’s mission and clearly articulated in its philosophy.

Exercise Physiology Learning Outcomes

Faculty in the Exercise Physiology program developed learning outcomes for the program in 2010. As part of the process to develop the learning outcomes, individual faculty who teach in the undergraduate EP program were asked to submit learning outcomes that represent what is covered in their courses. The Curriculum Committee then reviewed and revised the learning outcomes. The learning outcomes were approved by the President’s office and are on the University’s website ([http://www.uml.edu/Academics/Provost-Office/Student-Learning-Outcomes/Search/](http://www.uml.edu/Academics/Provost-Office/Student-Learning-Outcomes/Search/)).

Upon completion of the Exercise Physiology program, the student will be able to:

- Understand the anatomical and biomechanical bases of human movement
- Understand the physiological and biophysical bases of human movement
- Determine and justify the best set of examination procedures, evaluate the results of the examination to develop an exercise prescription, which maximizes compliance, motivation, and prevents injury and illness
- Evaluate professional literature in kinesiology and exercise physiology
- Apply knowledge in kinesiology and exercise physiology to a practicum setting
- Implement a self-directed plan for professional development and lifelong learning which includes self-assessment, self-correction and self-direction
- Demonstrate professional behavior during interactions with others
- Communicate effectively in ways that are congruent with situational needs including appropriate body language, written communication, active listening skills and questioning
Graduates from the Exercise Physiology program are prepared to work in a variety of settings, including health promotion, strength and conditioning, personal training and fitness, and cardiopulmonary rehabilitation. Graduates of the program are academically prepared for graduate study in the Doctorate in Physical Therapy program at UMass Lowell (and other physical therapy programs), as well as graduate study in other health professions or biomedical sciences, public health, and athletic training. Graduates are equipped to address the rising concerns related to human health, chronic disease and disability associated with reduced physical activity and obesity. These career options align with the mission and strategic plan of the Department of Physical Therapy and the College of Health Sciences to educate tomorrow’s leaders for a healthier world.

History of the Exercise Physiology Program

The first Bachelor of Science class in Exercise Physiology was admitted in fall 1988. The major was initially created as a "feeder" undergraduate program for the Master of Science in Physical Therapy, which admitted its first class in fall 1990. At the time, the B.S. in Exercise Physiology was offered through the Department of Clinical Laboratory Sciences. The program joined the Department of Physical Therapy in approximately 1991. The Department of Physical Therapy continues to confer a Bachelor of Science degree in Exercise Physiology and an entry-level doctorate degree in Physical Therapy.

Enrollment in Exercise Physiology Program

The EP program has experienced significant growth in the last few years, with a 221% increase in enrollment from fall 2009 to fall 2014, from a total of 214 to 473 students. The number of students graduating with a B.S. in Exercise Physiology has also significantly increased, from a low of 35 graduates in the 2009-10 academic year to a high of 66 graduates in the 2013-14 academic year (Table 1). It is anticipated that the number of graduates for the 2014-15 academic year will surpass these numbers, with 80 students in their senior year of study. This growth in student enrollment reflects the growth of the University during the same period of time.

Table 1. Undergraduate degrees granted (Exercise Physiology program).

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Number of Degrees Granted</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009-10</td>
<td>35</td>
</tr>
<tr>
<td>2010-11</td>
<td>53</td>
</tr>
<tr>
<td>2011-12</td>
<td>50</td>
</tr>
<tr>
<td>2012-13</td>
<td>65</td>
</tr>
<tr>
<td>2013-14</td>
<td>66</td>
</tr>
</tbody>
</table>
As a direct result of the increase in enrollments in the undergraduate Exercise Physiology program, the program is no longer considered solely a feeder program for the graduate Doctor of Physical Therapy (DPT) program. Although many graduates of the Exercise Physiology program continue to pursue a graduate degree in Physical Therapy at UMass Lowell or another university, many EP graduates consider other career options, including cardiac and pulmonary rehabilitation, strength and conditioning, health promotion, and personal training. EP graduates also pursue graduate degrees in other areas, including medicine and nursing, kinesiology, education, nutrition, and biomedical engineering. The senior student exit surveys in the last three years indicate that approximately 48% EP students who completed the survey plan to attend a graduate physical therapy program, while 28% plan to pursue other graduate degrees. Additionally, 10% of students plan to work in a cardiac or pulmonary rehabilitation setting following graduation and 14% of students plan to work in the area of strength and conditioning. These career goals parallel the mission statements of the College of Health Sciences and the

**The EP/DPT Freshman-admit Program**

Originally, UMass Lowell did not guarantee spots in the graduate DPT program to individual undergraduate students in Exercise Physiology. Exercise Physiology students interested in the DPT program could apply for an expedited admission, which required a 3.5 or higher overall and PT Science GPA at the end of their junior year. The PT Science GPA included Anatomy and Physiology I and II, Physiological Chemistry I and II, General Physics I and II, Exercise Physiology, and Kinesiology. The GRE requirement was waived with the expedited review process. Those students who did not qualify for expedited admission could apply for admission to the DPT program with the other applicants during the fall of senior year.

In response to urging from University leadership, the department piloted an EP/DPT freshman-admit program in fall 2009. High school students applying to the Exercise Physiology program required SAT scores of at least 1100 and a GPA of 3.5 or higher to be considered for this highly selective program. In addition, these students also needed to attain a 3.5 overall and PT Science GPA by the beginning of their senior year to be eligible to join the DPT program the following fall semester. Fourteen freshman students qualified for this program in fall 2009 with an average SAT of 1165 and GPA of 3.8. At the beginning of their senior year (fall 2012), eight remained in the Exercise Physiology program. Six of the eight students met the conditions for acceptance to the DPT program in fall 2013. The other six students had changed their major or had been dismissed.

In 2011, the department officially began offering an EP/DPT freshman-admit program option with slightly altered criteria for admission. Eligible high school seniors needed to have a 3.25 or higher GPA and a 1200 or higher score on the SAT. Students were required to have a 3.4 overall and Science GPA at the beginning of their senior year in the Exercise Physiology program for continued matriculation into the DPT program. Twenty-five students accepted this option in fall 2011. Five of the 25 withdrew or changed their major at UMass Lowell. Of the remaining 20 students, 8 were eligible to enter the DPT program in fall 2015. The other 12 students did not meet the GPA requirements for the EP/DPT program. Between 2012 and 2014, 76 high school seniors were accepted for the EP/DPT freshman-admit program and chose to attend UMass Lowell.
The data presented in Table 2 indicates that the average SAT score for all students admitted to the EP program is increasing, suggesting improved quality of the students who are applying and being accepted to the Exercise Physiology program. The freshman-entry EP/DPT option attracts applicants who are outstanding academically, which promotes our numbers and the quality of the program. The increase in numbers and quality of the students meet the goals of the University, the College, and the Department.

Table 2. Average SAT scores per academic year (Exercise Physiology admitted students).

<table>
<thead>
<tr>
<th>Academic Year (AY)</th>
<th>SAT Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011-2012</td>
<td>1098</td>
</tr>
<tr>
<td>2012-2013</td>
<td>1106</td>
</tr>
<tr>
<td>2013-2014</td>
<td>1102</td>
</tr>
<tr>
<td>2014-2015</td>
<td>1256</td>
</tr>
</tbody>
</table>
II. Program Ensures that Curriculum is Relevant, Rigorous, Current and Coherent

The undergraduate Exercise Physiology program curriculum was originally developed to meet the prerequisites for entry into the graduate DPT program. The current curriculum is broad-based and includes courses in liberal arts, basic sciences (Biology, Anatomy and Physiology, Chemistry, Physics, and Biochemistry), and professional courses (Exercise Physiology, Kinesiology, Exercise Prescription and Program Planning, Research Methods, and Pharmacology). The Exercise Physiology courses are comprehensive and cumulative to prepare students for a practicum experience in the senior year. Practicum settings range from clinical (cardiac/pulmonary rehabilitation setting) to performance (fitness centers, collegiate and high school athletic teams) to research (exercise physiology or health-related research facilities). Although many students consider entry into a DPT program as their goal post-graduation, the curriculum provides a strong foundation in sciences, so students can consider graduate studies in a variety of health-related careers and entry into the workforce. The strength of the program in the sciences and the ability for graduates to pursue a variety of health and science careers improves student retention, which is important in meeting Department, College, and University goals for increased enrollment and graduation rates.

General Degree Requirements of the Exercise Physiology Program

Students are required to complete all curriculum requirements of the Exercise Physiology major (a minimum of 120 credits) and all University general education requirements. No more than 30 credits may be from Course Equivalency Examinations (CLEP). Transfer credits will not be accepted once the student has 60 credits at the university. Students may not take and transfer in credits from a 2-year college once the student has achieved junior status.

Students in the Exercise Physiology major must maintain:

- A minimum 2.5 overall GPA
- A minimum 2.5 cumulative average in required science courses (A & P I/II; General Physics I/II; Physiological Chemistry I and II, all with labs)
- A minimum 2.5 average in EP major courses and may not receive less than a C grade in any major course

Grade point averages for all students in the Exercise Physiology program are reviewed at the end of each semester. Students who fail to satisfy academic requirements will be dismissed from the program with the right to appeal to the Department Professional Review Committee. Students whose appeal is successful will be readmitted to the program on probation. Students may be placed on probation only once. Failure to meet the terms of the probation will result in dismissal from the program with no further appeal possible. This information is in the Exercise Physiology Student Manual (http://www.uml.edu/docs/EP%20Student%20Manual%20-%20Class%20%20of%202018_tcm18-154071.pdf).
Between fall 2008 and spring 2013, 74 students were dismissed from the Exercise Physiology program, with the most common reason for dismissal being a Science GPA below 2.5. During the same timeframe, approximately 110 additional students were placed on probation. Once a student has been dismissed from Exercise Physiology, he/she must change his/her major in order to stay at UMass Lowell.

Students must successfully complete all science prerequisites (Anatomy & Physiology I & II; Physiological Chemistry/Chemistry/General Chemistry I & II, General Physics I & II, all with labs) prior to entry into the junior year. In addition to the above-mentioned science courses, Biology for Health Sciences and Lab must be completed before entry into the junior year.

The curriculum is:

<table>
<thead>
<tr>
<th>Freshman Year/Fall Semester</th>
<th>Cr.</th>
<th>Freshman Year/Spring Semester</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.101 Human Anatomy &amp; Phys. I (SCL)</td>
<td>3</td>
<td>35.102 Human Anatomy &amp; Physiology II (SCL)</td>
<td>3</td>
</tr>
<tr>
<td>35.103 Human Anatomy &amp; Phys. I Lab</td>
<td>1</td>
<td>35.104 Human Anatomy &amp; Phys. Lab II</td>
<td>1</td>
</tr>
<tr>
<td>42.101 College Writing I (Gen. Ed.)</td>
<td>3</td>
<td>42.102 College Writing II (Gen. Ed.)</td>
<td>3</td>
</tr>
<tr>
<td>47.101 General Psychology (Gen. Ed. SS)</td>
<td>3</td>
<td>47.260 Child &amp; Adolescent Dev. (Gen. Ed) SS</td>
<td>3</td>
</tr>
<tr>
<td>38.101 EP Fr. Seminar</td>
<td>1</td>
<td>30.102 Intro to Public Health</td>
<td>3</td>
</tr>
<tr>
<td>92.283 Intro to Statistics (Math)</td>
<td>3</td>
<td>81.122 Biology for Health Sciences</td>
<td>3</td>
</tr>
<tr>
<td>48.101 Intro. Sociology (Gen. Ed. SS,D,E)</td>
<td>3</td>
<td>81.124 Biology for Health Sciences Lab</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td></td>
<td>17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore Year/Fall Semester</th>
<th>Cr.</th>
<th>Sophomore Year/Spring Semester</th>
<th>Cr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.206 Human Nutrition</td>
<td>3</td>
<td>38.202 Intro. to Exercise Physiology</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry Lecture and Lab*</td>
<td>4</td>
<td>Chemistry II Lecture and Lab*</td>
<td>4</td>
</tr>
<tr>
<td>95.103 General Physics I Lecture</td>
<td>3</td>
<td>95.104 General Physics II Lecture</td>
<td>3</td>
</tr>
<tr>
<td>96.103 General Physics I Lab (Gen. Ed.) Arts/Humanities Elec.</td>
<td>1</td>
<td>96.104 General Physics II Lab</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>(Gen. Ed.) Arts/Humanities Elec.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td></td>
<td>14</td>
</tr>
</tbody>
</table>
### Junior Year/Fall Semester

- **36.350 Human Biochemistry** 3
- **38.305 Exercise Physiology I** 4
- **38.307 Exercise Physiology Lab I** 1
- **38.315 Kinesiology** 3
- **38.317 Kinesiology Lab** 1
- **(Gen. Ed.) Arts/Humanities Elec.** 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>36.350 Human Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>38.305 Exercise Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>38.307 Exercise Physiology Lab I</td>
<td>1</td>
</tr>
<tr>
<td>38.315 Kinesiology</td>
<td>3</td>
</tr>
<tr>
<td>38.317 Kinesiology Lab</td>
<td>1</td>
</tr>
<tr>
<td>(Gen. Ed.) Arts/Humanities Elec.</td>
<td>3</td>
</tr>
</tbody>
</table>

### Senior Year/Fall Semester

- **38.412 Clinical Practicum (1/2 the class)** 4
- **38.417 Research Methods in Exercise Phys.** 3
- **38.418 Senior Seminar** 3
- **38.422 Exercise Prescription & Programming** 3
- **Free elective** 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>38.412 Clinical Practicum (1/2 the class)</td>
<td>4</td>
</tr>
<tr>
<td>38.417 Research Methods in Exercise Phys.</td>
<td>3</td>
</tr>
<tr>
<td>38.418 Senior Seminar</td>
<td>3</td>
</tr>
<tr>
<td>38.422 Exercise Prescription &amp; Programming</td>
<td>3</td>
</tr>
<tr>
<td>Free elective</td>
<td>3</td>
</tr>
</tbody>
</table>

### Junior Year/Spring Semester

- **30.306 Intro. to Gerontology OR 47.360 Adult Development and Aging** 3
- **38.406 Exercise Physiology II** 4
- **38.408 Exercise Physiology Lab II** 1
- **38.336 Pharmacology** 3
- **47.301 EP Junior Seminar** 1
- **38.272 Abnormal Psychology** 3

### Senior Year/Spring Semester

- **38.420 Advanced Studies in EP** 3
- **Free elective** 3
- **Free elective** 3
- **Free elective** 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.306 Intro. to Gerontology OR 47.360 Adult Development and Aging</td>
<td>3</td>
</tr>
<tr>
<td>38.406 Exercise Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>38.408 Exercise Physiology Lab II</td>
<td>1</td>
</tr>
<tr>
<td>38.336 Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>47.301 EP Junior Seminar</td>
<td>1</td>
</tr>
<tr>
<td>38.272 Abnormal Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Minimum Total Credits = 120**

**OR** Advanced Study in EP can be substituted with Directed Study in Health Promotion.

### Sophomore Year – Science Elective Choices

#### Fall

- **35.251 Physiological Chemistry I** 3
- **35.253 Physiological Chemistry Lab I** 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.251 Physiological Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>35.253 Physiological Chemistry Lab I</td>
<td>1</td>
</tr>
</tbody>
</table>

**OR**

- **84.111 General Chemistry I** 3
- **84.113 General Chemistry Lab I** 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>84.111 General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>84.113 General Chemistry Lab I</td>
<td>1</td>
</tr>
</tbody>
</table>

**OR**

- **84.121 Chemistry I** 3
- **84.123 Chemistry I Lab** 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>84.121 Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>84.123 Chemistry I Lab</td>
<td>1</td>
</tr>
</tbody>
</table>
Exercise Physiology Freshman and Sophomore Year Curriculum

The freshman and sophomore year course selection meets general education/core curriculum requirements. Students gain knowledge in core science courses, including Anatomy and Physiology I, Anatomy and Physiology II and labs, Physiological Chemistry I and II and labs, offered through the Clinical Laboratory and Nutritional Sciences Department (CLNS), General Physics I and II and labs, offered through the Physics Department, and Biology for Health Sciences and lab, offered through the Biology Department. These courses help to prepare students for junior and senior year professional courses.

Courses that contribute to student’s comprehension of cognitive development and behavior include General Psychology, Child and Adolescent Development, Adult Development and Aging and Abnormal Psychology, while Intro to Statistics and Nutrition integrate and apply previously learned material in mathematics, physiology and chemistry.

The versatility of the program allows students to choose a minor in either Psychology or Nutrition, since they already take a number of courses required for completion of the minor as part of their major requirements. Additionally, students often choose other minors, including Disability Studies and a foreign language.

UMass Lowell is currently undergoing a change in the general education program: The Core Curriculum model will replace the General Education Program. One of the components of the Core Curriculum model is to ensure students demonstrate the attainment of seven Essential Learning Outcomes (ELOs) during each student’s degree pathway. The seven Essential Learning Outcomes are:

- Diversity and Cultural Awareness (DCA)
- Information Literacy (IL)
- Social Responsibility and Ethics (SRE)
- Written and Oral Communication (emphasizing Writing in the Discipline) (WOC)
- Critical Thinking and Problem Solving (CTPS)
- Applied and Integrative Learning (AIL)
- Quantitative Literacy (QL)

A four-person committee evaluated Exercise Physiology program syllabi in fall 2014. (Appendices A and B contain the syllabi.) Courses included in the review included those that are required for graduation and are taught by full-time faculty. Curriculum mapping was performed after careful examination of the course objectives and class assignments (Table 3). The EP program is able to meet all the criteria of the required ELOs without making any major changes to the current curriculum. The EP ELO committee will work with individual faculty to modify some course objectives as well as some of the class assignments. Overall, the review indicates the program has historically met the general education requirements of general knowledge, critical thinking capacity and other essential cognitive skills.
Table 3. Curriculum map for Exercise Physiology program courses.

<table>
<thead>
<tr>
<th>Course(s)</th>
<th>DCA</th>
<th>IL</th>
<th>SRE</th>
<th>WOC</th>
<th>CTPS</th>
<th>AIL</th>
<th>QL</th>
</tr>
</thead>
<tbody>
<tr>
<td>38.305 Exercise Physiology I</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>38.307 EPI Lab</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>38.315 Kinesiology</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>38.317 Kinesiology Lab</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>38.301 EP Junior Seminar</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>38.406 Exercise Physiology II</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>38.408 EPII Lab</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>38.412 Clinical Practicum</td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>38.417 Research Methods in EP</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>38.418 Senior Seminar</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>38.422 Exercise Prescription &amp;</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Programming</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

✓: Course contains objectives or assignments related to Essential Learning Outcome

Exercise Physiology Junior and Senior Year Curriculum

While core science courses in the freshman and sophomore years are taught by faculty in the Clinical Laboratory and Nutritional Sciences, Biology, and Physics Departments, faculty in the Exercise Physiology program and the Department of Physical Therapy primarily teach the professional courses in the junior and senior year. With the exception of Pharmacology, the primary professional courses in the junior year are all taught by department faculty and include Exercise Physiology I and II and labs, Kinesiology and lab, and Junior Seminar. The junior year professional coursework builds on the knowledge gained in freshman and sophomore year core courses and prepare students for the practicum experience in the senior year. As part of this preparation, the laboratory classes emphasize skills that are required to be successful in practicum, including analyzing normal movement patterns and identifying major muscles that control movements, monitoring exercise (heart rate, blood pressure, and oxygen consumption), and determining muscle strength and power, flexibility, agility, speed, and performing common physical performance tests. Pharmacology, Exercise Prescription and Programming, and Research Methods in Exercise Physiology help students learn specific information that may be used in their practicum experience and help them to integrate the knowledge that they have learned in the program.

Curricular Content Evaluation

The Committee for the Accreditation for the Exercise Sciences (CoAES) has established criteria for the accreditation of undergraduate programs of Exercise Science. The Job Task Analysis (JTA) Tables are intended to provide guidance in evaluating curricular content and competency.
of the performance domains and associated job tasks for the American College of Sports Medicine (ACSM) Certified Health Fitness Specialist. Although we are not currently planning to obtain accreditation for the Exercise Physiology program at UMass Lowell, the AQAD committee utilized the JTA tables to help guide the evaluation of the curriculum in a systematic way.

Faculty identified the content from their classes described in the tables. The AQAD committee then reviewed the tables to evaluate areas of curricular content. The tables can be found in Appendix C. Analysis of the JTA tables suggests that the undergraduate EP program at UMass Lowell has significant strength in the scientific basis of health and fitness assessment as well as exercise prescription and implementation. The analysis also showed that the topics of exercise counseling and behavioral strategies are not emphasized in the curriculum. Since the emphasis of the program is to provide a strong basis in the science of exercise, the AQAD committee did not consider this to be a limitation.

**Readiness for practice: the Clinical Practicum**

In the senior year, students enroll in Clinical Practicum either fall or spring semester for 12 hours/week for 12 weeks. The practicum experiences enable students to apply the concepts and theories learned in the classroom to the "real world" setting. Measures of professionalism and job competence are gathered via the Exercise Physiology Practicum Student Performance Evaluation as each student completes Clinical Practicum (see Appendix D, Practicum Performance Evaluation).

Categories of practicum sites include but are not limited to the following:

- Strength and conditioning
- Cardiopulmonary rehabilitation
- Fitness center
- Private gym educational facility
- Corporate fitness center
- Geriatric rehabilitation
- Research

In preparation for the clinical practicum experience, the students enroll in Junior Seminar for 1 hour/week during the second semester in the junior year. In addition to collecting necessary paperwork/forms and organizing the practicum, topics discussed in the seminar include practicum guidelines, communication conflict resolution, and cultural awareness and disability professionalism.

As part of Junior Seminar, students are currently required to pass an EKG exam, complete HIPAA certification, and to submit a resume for review. Students are graded on participation and weekly written assignments. It is also important to note that students are in the process of selecting their practicum sites during this semester.

While on practicum, students enroll in Senior Seminar, a co-requisite for Clinical Practicum. Senior Seminar meets 3 hours/week with the purpose of enhancing the practicum experience.
Topics in Senior Seminar vary but may include the following:

- Recognizing attitudes, values, and beliefs of oneself and others
- Ethics in the health care profession
- Communication: how to deal with difficult people
- Motivation: how to motivate the unmotivated client
- Cross-cultural awareness: Latino/ African American/ Asian/ Native American cultures
- Conflict resolution – with co-workers, clients, patients, supervisors
- Evidence based practice in exercise physiology
- Disability
- Spirituality
- Stress management
- Preparation for entry into the field: networking, job search
- Professionalism

Students are evaluated using the following formative and summative assessments: weekly reflection journals, group presentations, case study assignments, class participation and a written final exam.
III. Program Ensures Faculty Quality and Productivity

The Department’s expectations for faculty teaching, instructional effectiveness, research and publication, professional leadership and achievement, and service to the university and community are consistent with the standards stated in the Massachusetts Society of Professors (MSP) Contract, under Article VII (Criteria for Appointment, Promotion and Tenure) and Article IX (Evaluation of Faculty and Librarians). The full contract is at http://faculty.uml.edu/msp/contract/contract-2012.htm. The criteria for merit may also be found in Article IX. Workload expectations are specifically addressed in Article XVI of the same document. The MSP contract defines the type of evaluations that are necessary and how often the evaluations should be conducted for non-tenured and tenured faculty. The categories for evaluation include instructional effectiveness, research and publications, professional leadership and achievement, and service to the university and community.

Determining quality and productivity of faculty is a culmination of several aspects of the job. For the AQAD report, we used the reports previously completed for the DPT program's annual accreditation report, CVs of individual faculty, and reports submitted for annual merit review. The Personnel Committee, whose membership includes tenured faculty, reviews accomplishments of non-tenured faculty and lecturers each year.

The Department Chair defines faculty workload expectations in the MSP contract. Faculty members interested in receiving "research active" or "research productive" status must submit a research plan and documentation of accomplishments each year. Faculty members whose applications are accepted as "research active" or "research productive" may qualify for a reduced teaching load.

Table 4 presents information on faculty scholarly productivity from 2009 to 2014. The table indicates a drop in publications and presentations, but an increase in the total amount of grant funding. The decrease in scholarly activity may be related to the increase in student numbers and increased teaching and service (advising, committees) of faculty over the last few years. A goal of the Physical Therapy Department and the Exercise Physiology program is to increase faculty scholarly productivity. The influx of new tenure-track faculty, lecturers, and adjunct faculty will help to reduce advising and teaching loads for tenure-track faculty, which should allow for more time dedicated to research.
Table 4. Physical Therapy Department faculty scholarly productivity.

<table>
<thead>
<tr>
<th>Productivity Metric</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer-reviewed articles published</td>
<td>16</td>
<td>14</td>
<td>14</td>
<td>4</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Other articles accepted and/or published</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Presentations (e.g. platform, Poster (invited))</td>
<td>31</td>
<td>32</td>
<td>32</td>
<td>8</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Books or book chapters published</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Papers, proposals, and presentations</td>
<td>16</td>
<td>14</td>
<td>14</td>
<td>0</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Other scholarly products reviewed and disseminated</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Core faculty with funded grants</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Total amount of grant funding</td>
<td>$43,000</td>
<td>$35,000</td>
<td>$35,000</td>
<td>$31,098</td>
<td>$31,838</td>
<td>$92,065</td>
</tr>
<tr>
<td>Amount of funding from NIH</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>$17,262</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Faculty with unfunded grant proposals</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

The University fosters professional development and growth of faculty through providing monthly department, College and University seminars (www.uml.edu/faculty-development/About-Us.aspx). The Information Technology Office at the University also offers online and in-person seminars on a variety of topics, including "Collaborate with Wikis" and "Record your own tutorials." Department faculty also attends and present at a monthly seminar series coordinated by Dr. Mahdi Garelnabi of the Department of Clinical Laboratory and Nutritional Sciences. For the second consecutive year, a "Snack and Learn" series was held for department faculty. These courses helped faculty to optimize the use of technology in the classroom and to improve student learning and engagement. The University also fosters professional development by providing funds for this purpose annually, ranging from $400 to $800 per faculty based on faculty contracts.

Each member of the faculty contributes to professional organizations by serving on editorial boards, accreditation boards, review panels and campus, regional and national committees. They present research at regional, national and international meetings and publish in print and online scholarly journals. Additionally, the faculty have worked to develop strategies for engaging students in regional and international service and research experiences. Faculty also perform research and outreach to the community to promote healthy behaviors and physical activity. The accomplishments of the faculty may be observed in the individual CVs (see Appendix E).
IV. Program Ensures Teaching/Learning Environments that Facilitate Student Success

The Exercise Physiology program works hard to promote student success by effective use of the teaching and learning environment in the classroom, the living environment, and in social activities. The University defines student success as "that underlying thread that unites us and … also connects [staff and students] to other key resources on campus. The success of our students (academically, personally, socially, and professionally) is a university value and priority" (http://www.uml.edu/Enrollment/).

University Support for Student Success

Academic support for all College of Health Sciences undergraduate students, including those in the EP program, includes multiple resources found at the University’s Center for Learning and Academic Support Services website (CLASS, http://www.uml.edu/class/).

Additionally, the following University programs support students:

- Health Services – provides medical attention and manage health related documentation (http://www.uml.edu/student-services/health/).
- Counseling Center – provides support for students in need of emotional support (http://www.uml.edu/student-services/counseling/).
- Financial Aid Office (http://www.uml.edu/financialaid/)
- Office of Student Disability Services – Assistance for those who have a condition that may impact their academic performance (http://www.uml.edu/student-services/disability/).
- STARS program – Addresses student behaviors that are disruptive and may include mental health and/or safety issues. Faculty, staff or other students may refer students viewed as at risk to this program (http://www.uml.edu/student-services/STARs/default.aspx).
- Starfish program – Allows faculty who teach freshman courses to provide warning early in the semester to academic and student life advisors regarding students who are not attending classes regularly. It also encourages students to consult faculty and access available resources in a timely fashion.
- Student Success Collaborative- In order to assist student with timely completion of their degrees, the University is inaugurating the Student Success Collaborative. http://www.uml.edu/IT/Services/Administrative-Applications/SSC.aspx
**College Support for Student Success**

Students in the College of Health Sciences can meet with Jennifer Keene-Crouse, the Coordinator of Student Success. Jennifer can assist students with academic issues such as a change in major, gaining access to a closed class section, and withdrawing from a class.

The Health and Environment Academic Living and Learning Community (H.E.A.L.L.) is a residential option to support students enrolled in programs in the College of Health Sciences. Freshman and upper class students have the benefit of participating in the H.E.A.L.L. community, now located in Sheehy Hall on South Campus. The benefits of this experience are best described on the Residence Life website ([http://www.uml.edu/student-services/reslife/living-learning-communities/HEALL.aspx](http://www.uml.edu/student-services/reslife/living-learning-communities/HEALL.aspx)) which states:

"This Living-Learning Community aims to help students in the health professions bridge their experience in the classroom by providing a unique learning environment within the residence hall. Students living in this community will have the opportunity to participate in monthly exam reviews for Anatomy and Physiology as well as social activities geared towards community-building and socialization. A faculty advisor from the College of Health Sciences is also actively involved in assisting students in their career exploration and academic success."

The College of Health Sciences Student Resource Center, first opened in fall 2010, provides individual tutoring in the core science and professional classes, including Anatomy and Physiology, Physiological Chemistry, General Physics, and Exercise Physiology Professional courses. Students are able to "drop in" without an appointment. The Resource Center also provides study materials for students, including practice tests and lab models for review and learning. Focus groups with students in spring 2011 confirmed that the services provided are important to the students in the College. The expansion of the Resource Center in fall 2014 highlights the importance of this resource for student success. Students responded positively to the expansion of the resource center in the fall of 2014 as evidenced by the following affirmations:

"The Resource Center is a really great place to study. I really like how there are models for us to use and learn from. I did really well on my exams after being there."

"The resource room is a lifesaver before A&P exams, particularly lab. Many students use the resource room, which is good because we tend to all work together to study, if we don't know what something is on the practical, or if we need help with a concept, there is always someone else in there to help you."

**Classroom Management for Student Success**

Despite the growing numbers in the program, the Department has attempted to maintain smaller class sizes by teaching two or three sections of 50 students in the core courses. These courses are
Introduction to Exercise Physiology, Exercise Physiology I & II Kinesiology, and Research Methods. The goal of creating multiple sections was to maintain the benefits of smaller class size with low student-to-teacher ratios.

With increasing numbers of students, the EP faculty continues to be challenged to improve student learning and engagement in the classroom. Since laboratory experiences play such an important role in experiential learning, lab enrollment is set at 17 students maximum. Currently, faculty and teaching assistants utilize space in the Campus Recreation Center, Costello Gym, and open areas outside of Weed Hall for laboratory activities, as appropriate. In addition, faculty work to optimize the use of lab and/or classroom space based on the number of students. Faculty and TAs monitor equipment needs for laboratories and submit requests based on those needs. However, during this self-assessment, it was noted that there is no policy regarding the procedures and responsibilities regarding preparation of laboratories and equipment. In the future, the faculty plan to develop policies and procedures for laboratory use and equipment needs.

Lecture halls utilized by the undergraduate program are equipped with state-of-the-art teaching technology including SMART podiums, document cameras, and taping of lectures so students can view them at a later time on ECHO capture. Video may also be utilized in the classroom or posted on Blackboard to enhance learning. Many professors utilize Blackboard, a web-enhanced Learning Management System that enables on-line and blended learning environments. Instructional videos, open discussion and group learning activities may also be utilized in the classroom or posted on Blackboard to enhance interactive learning. The university provides Blackboard support for faculty and IT support for SMART classrooms UMass Lowell is continually pushing to enhance learning environments; for instance, the new Health and Social Sciences Building incorporates open-plan classrooms and rolling chairs to encourage dynamic group activities.

Based on data from the 2012-2014 senior student exit surveys, approximately 75% of students believe that the faculty assisted them in the learning process "to a very large extent" or "to a large extent."

**Academic Advising for Student Success**

The EP program extends this support to the academic environment, and each Exercise Physiology student is assigned an academic advisor who assists the student in navigating the educational landscape. Students are required to meet with their advisors each semester prior to course registration in order to receive guidance with course selection and address any areas of concern regarding successful completion of the program. Throughout their time in the program, students are encouraged to access the services provided by their advisors. In an effort to deliver the most accurate and consistent information to our newest students, freshmen are assigned to a freshman advisor. These advisors work cooperatively with one another and the chair of the department to address specific issues involving this cohort of students. Additionally, Freshman Seminar includes a review of the program’s course of study and caveats for course selection.
Advising requirements for all faculty are consistent with the MSP contract (http://faculty.uml.edu/msp/contract/contract-2012.htm). The goal for the Department is for each tenure-track faculty member to have 25 advisees and each non-tenure-track faculty member to have 35 advisees. At this time, two advisors (one tenure-track faculty member and the Program Administrator) have 60 or more advisees. The program faculty will continue to evaluate undergraduate advising, ensuring that all students receive timely and accurate information. The leadership team will also continue to advocate for increased faculty dedicated to the undergraduate program to address increased advising responsibilities for the large number of students now in the Exercise Physiology program.

**Social Engagement for Student Success**

Social engagement and peer interaction are promoted through the department’s face book page and Exercise Physiology (EP) Club supported by a faculty advisor. All EP students are encouraged to participate in the Exercise Physiology Club. The message of having fun while being healthy is reflected in the club’s mission, which states, "Our main objective is to further improve the education and experience of EP majors but to also have a ton of fun while promoting an active and healthy lifestyle. This club is open to all majors and it doesn't matter whether you're a seasoned athlete or just enjoy hitting the gym." The department strategically utilizes social media to connect with students, support their endeavors and promote their accomplishments.

**Measurement of Student Outcomes**

Faculty in the Exercise Physiology program developed learning outcomes for the program in 2010, as mentioned previously in this document. As part of the AQAD assessment, we are evaluating student success and attainment of these learning outcomes, with the long-term goal of improving student success and retention. These goals are aligned with the University, College, and Department missions by preparing graduates to practice their professions with knowledge and competence.

Methods to evaluate the learning outcomes include:

- Retention and graduation rates
- Oral and written feedback from students enrolled in the program, including course evaluations
- Oral and written feedback from instructors who supervise students on practicum, including reports of student performance
- Oral and written feedback from program graduates; Senior Student Exit Surveys and following graduation
Retention and Graduation Rates

Retention and graduation rates are an important marker of student success at the University. In the University Report Card 2020 (www.uml.edu/2020), UMass Lowell considers not only retention of students who enter UMass Lowell as freshmen, but also transfer students. The University also considers six-year graduation rates for freshman and four-year graduation rates for transfer students.

According to the UMass Lowell 2020 Report Card 2014, the University’s goal is to achieve a full time freshman one-year retention rate of 90% by 2018. The EP program is on target with this goal, as our one-year retention rates for full-time freshmen from 2009 to 2013 range from a low of 90% for the 2009 EP freshman class to a high of 95% for the 2010 and 2013 EP freshman classes. These retention rates are higher than the overall average rate for UMass Lowell, which ranges from 78% to 84% (Table 5).

Table 5. Full-time freshman one-year retention rate.

<table>
<thead>
<tr>
<th></th>
<th>Fall 2009</th>
<th>Fall 2010</th>
<th>Fall 2011</th>
<th>Fall 2012</th>
<th>Fall 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMass Lowell (All Programs)</td>
<td>81%</td>
<td>78%</td>
<td>79%</td>
<td>81%</td>
<td>84%</td>
</tr>
<tr>
<td>Exercise Physiology Program</td>
<td>90%</td>
<td>95%</td>
<td>91%</td>
<td>92%</td>
<td>95%</td>
</tr>
</tbody>
</table>

Another of the University’s goals is to achieve a full-time freshman six-year graduation rate of 60% by 2018. By comparison, the EP program’s four-year graduation rates for the 2009 and 2010 EP freshman classes were 77% and 78%, higher than the six-year graduation rates for the University (Table 6). These results clearly indicate that the Exercise Physiology program is successful in retaining students at UMass Lowell. Students from the Exercise Physiology program are also more likely to graduate in four years than students in other programs at UMass Lowell.

Table 6. Full-time freshman four-year graduation rate.

<table>
<thead>
<tr>
<th></th>
<th>Fall 2009</th>
<th>Fall 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMass Lowell (Six-Year – All Programs)</td>
<td>53%</td>
<td>51%</td>
</tr>
<tr>
<td>Exercise Physiology Program (Four-Year)</td>
<td>77%</td>
<td>78%</td>
</tr>
</tbody>
</table>

Tables 7 and 8 provide the retention and graduation rates for students who have transferred to the Exercise Physiology program. The data in the table includes students who entered the Exercise Physiology program from another major at the University as well as transfer students from other colleges and universities.

The Exercise Physiology program’s retention rate ranged from a high of 86% in the 2010-11 academic year to a low of 67% in the 2012-13 academic year. The drop in rates may be
explained by a change in the admissions criteria in 2012; the overall and Science GPA was reduced from a 2.7 to a 2.5 with the deletion of a core science requirement.

Graduation rates were higher for those students who transferred to EP in 2010-2011 (85%), with a drop in those who entered the program in the 2011-2012 academic year (58%). In the 2011-2012 group of transfer students, 5 students are still working on their degrees (2 EP students and 3 in other majors). Once these students receive their undergraduate degrees, the graduation rate for this group of transfer students will be 72%. Compared to the four-year graduation rates for all UMass Lowell transfer students, the rates for the Exercise Physiology program for these same years equal or surpass the University average. This suggests that the Exercise Physiology program is retaining freshman students and fostering the academic success of transfer students. We plan to continue to examine policies and procedures that may allow us to improve retention and graduation rates, particularly for transfer students.

Table 7. Transfer student retention rate (Exercise Physiology program).

<table>
<thead>
<tr>
<th>Academic Year</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-11</td>
<td>86%</td>
</tr>
<tr>
<td>2011-12</td>
<td>70%</td>
</tr>
<tr>
<td>2012-13</td>
<td>67%</td>
</tr>
<tr>
<td>2013-14</td>
<td>69%</td>
</tr>
</tbody>
</table>

Table 8. Transfer student graduation rates.

<table>
<thead>
<tr>
<th></th>
<th>2010-11</th>
<th>2011-12</th>
<th>2012-13</th>
<th>2013-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMass Lowell (Four-Year)</td>
<td>77%</td>
<td>65%</td>
<td>70%</td>
<td>64%</td>
</tr>
<tr>
<td>Exercise Physiology Program</td>
<td>85%</td>
<td>58%</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

* = data unavailable (not all students have graduated)

Faculty and Student Course Evaluations

The EP program utilizes faculty evaluation procedures established by the University. Tenured and non-tenured faculty evaluations are conducted in accordance with Article IX of the MSP contract. This process includes evaluation of non-tenured faculty by the department chair and evaluation of all faculty by the students:

"Each non-tenured unit member shall be annually evaluated by his or her Department Chairperson/Head or Library Division Head as the case may be. Department/Library Personnel Committee makes its mandatory annual review and positive or negative recommendations concerning the reappointment and non-reappointment of non-tenured unit members … The purpose of student evaluations is to inform faculty, Department
chairs, the Dean of the College, and the Provost about the impressions students have concerning their classroom experience."

A copy of the student course evaluation sheet can be found in Appendix F. The results from the course evaluations are used by individual faculty and by the Exercise Physiology Curriculum Committee to determine the need for revisions and modifications to current course content and activities. This process is an important piece in the program’s ability to provide a teaching and learning experience that facilitates student success.

**Practicum Instructor Evaluations**

Students are evaluated twice by their Clinical Instructor with a midterm assessment performed halfway through the practicum experience, and a final assessment performed at the conclusion of the practicum. The *Evaluation Tool* (Appendix D) is process-oriented and specifically delineates the student’s technical competencies with those behaviors and expectations, which comprise both professional behavior and a systematic approach to solving problems. The Evaluation Tool is divided into five major areas and grades are assigned based on the student’s most frequently observed level of performance:

I. **Professional Behavior and Attitude**  
II. **Safety**  
III. **Interpersonal Relationships and Communication Skills**  
IV. **The Problem-Solving Process**  
IV. **Administration/Management Skills**

Students are graded according to the following rating scale:

4: Excellent. Consistently meets the stated objective and/or the student is capable of functioning safely and independently.  
3: Good. Consistently meets the stated objective.  
2: Weak. Meets the stated objective, but with inconsistencies (knowledge, behavior or decision-making.)  
1: Poor/Unacceptable. Does not meet the stated objective (knowledge, behavior or decision-making).

The practicum supervisor uses the midterm scores to monitor student progress and to identify students who are not performing well, such as those receiving a score of 1 (poor/unacceptable) or 2 (weak) after the midterm. The Practicum supervisor addresses situations in which a student is not performing well immediately via phone call to both the practicum instructor and the student. A site visit is arranged when appropriate to support student success while out on practicum. All Exercise Physiology students must pass the senior practicum in order to graduate. To date, all students have successfully completed the senior practicum experience. The EP program faculty believe that the current system is efficacious in measuring student success while on practicum.
In addition to existing measurement tools, senior students are selected from nominations submitted by the practicum instructors for Exercise Physiology Practicum Excellence Awards. Students who receive this award typically demonstrate strong interpersonal and organizational skills and professionalism exceeding the clinical instructor’s expectation of an entry-level practitioner.

The nomination letters are another mechanism of feedback regarding the skills and competencies of some of the students. Generally the nominations reflect professionalism, work ethic and excellent interpersonal skills with the staff, patients, and clients. The comments on the award nominations are testimonies to the nominated students who practice their profession with knowledge and competence, which is consistent with the mission of the Department.

One practicum instructor wrote:
"The student was very professional ...and displayed an exceptional work ethic that allowed him to pick up on the logistics of our facility much faster than others. Often times would start work early and leave late. If I ever needed anything, [the student] was quick to help out. Within a few weeks at our facility [the student] was operating the same as my full-time staff does. I trusted him with several of our groups, ranging from youth to college, and would let him lead groups on his own for the majority of the fall. This is a task left to our full-time staff and our interns during the end of their internship. It wasn’t just the work output that [the student] displayed that made him special, but also the relationships he built with the athletes and staff he worked with. [He] is not only the best intern we had this fall, but also one of the top 3 interns (out of about 175) I have ever had in my 3 years at [our company]."

Senior Student Exit Surveys

The Exercise Physiology program undergoes evaluation by the graduating senior class each year as a means to measure students' perception of the curriculum and EP program and of the learning objectives delineated in the Department's mission and philosophy. Senior students complete the survey during Senior Seminar each semester (See Appendix G for a copy of the Senior Student Exit Survey).

The student exit surveys were initiated in 2012. All seniors complete the survey (half of the seniors in fall semester and the remaining half in the spring semester). As with all surveys, extrapolation of data is limited by the number of responses to the survey. The following information was compiled from survey responses received from spring 2012, fall 2012, spring 2013, fall 2013, and spring 2014. The response rate to each survey ranged from 29 to 35 respondents.

The senior student exit surveys were started in an effort to evaluate the learning outcomes that had been developed at the request of the Provost’s Office. Thus, we are limited by the available data. The Department does not follow up with graduates after graduation to continue evaluation of the program success. We also do not contact or follow up with employers of graduates of the Exercise Physiology program. Currently, the department relies on personal contact and anecdotal report to acquire this data. In the future, the department should investigate objective methods to capture this information as a measure of graduates’ professional success.
Summary of the Senior Student Exit Surveys

Data from the surveys indicated that 48% of students in EP planned to attend a graduate PT program while 28% planned to pursue other graduate degrees. For example, graduates of the class of 2014 planned to pursue careers in cardiac rehab, strength and conditioning and physical education. Graduates frequently aim to enter graduate schools such as the DPT program at UMass Lowell or other DPT programs at universities such as Simmons College and University of New England. Alternative career pathways reported include occupational therapy, nursing, physician assistant, prosthetics and orthotics, biomedical engineering and medical anatomy. These various career choices are similar to those reported by previous classes. This emphasizes that the Exercise Physiology program at UMass Lowell acts as a stepping-stone to a variety of careers and graduate programs, not exclusively to the DPT program at UMass Lowell.

Data compiled from the surveys also reveals the students’ perception of how well the program prepares them for the real world. In response to the question "Overall I rate my preparation by UMass Lowell’s EP program for practice as an Exercise Physiologist," 92.7% of students responded "Superior," "Average" or "Above Average." In addition, in response to the question "I developed the ability to apply knowledge in Kinesiology and Exercise Physiology in a practicum setting," 79.3% of students responded "to a large extent" or "to a very large extent." This suggests that graduates feel that the program is preparing them well for the real world.

In response to questions related to the learning outcomes, 79.6% believe that the program met the outcomes "to a large extent" or "to a very large extent" (range of 70.4-90.7%). This information suggests that the program is meeting the learning outcomes. In addition, 77% of students believe that the Exercise Physiology program provided them with the ability to recognize physiological and psychological needs of clients (example: monitor vitals, blood pressure, patient response to medication) and 75% of students believe that UMass Lowell's EP program provided them with the ability to demonstrate effective teaching skills with clients. The responses to these two questions suggest that a majority of the students believe that they are competent in basic skills that they will use in a practicum or work setting, but there is room for improvement. The program might consider additional practical or experiential learning experiences to help the students to become more comfortable with these skills.
V. Program Ensures that Resources are Used Wisely

Resource Management

The University of Massachusetts Lowell is a state-funded university. Funds are derived from tuition, fees, state allotments, and grants. The Chancellor of the University disburses the funds to individual College Deans who, in turn, make allotments to the departments.

The Chair of the Physical Therapy Department, in collaboration with the Director of Exercise Physiology and the Associate Director of the DPT program, conducts management of resources in the Exercise Physiology program. The role of the Chair in this process is to coordinate and prioritize faculty requests and Department needs into a priority system. The budget is presented to the Dean for allocation of funding. The Chair also manages all faculty and administrative personnel. This includes tenured faculty, lecturers (non-tenure track faculty and visiting faculty), the administrator of the department, adjunct faculty, graduate teaching assistants and work-study students. In addition to filing contracts for personnel, the Chair carefully and judiciously delegates work responsibilities.

This past year, the Chair advocated and received funds to purchase new equipment for the Exercise Physiology program (Parvo VO₂ system and Lode cycle ergometer). The Chair also advocated for funds to support student engagement in the regional New England American College of Sports Medicine Conference in Providence, RI, in November 2014. Approximately 30 students, including three members of the UMass Lowell College Bowl Team and two students who presented research posters, attended the meeting, along with two faculty members from the Exercise Physiology program. These funds, in addition to new faculty hires who teach and advise in the Exercise Physiology program, have helped to advance student learning and success.

Management of Human Resources and Specific Responsibilities

The Department Chair manages the coordination of human resources in the Exercise Physiology program. Coordination of human resources is important and allows for an equitable division of responsibilities among faculty and staff. Recent decentralization of many administrative tasks by the Dean’s office has led to increased workload on the Program Administrator and faculty to complete departmental management tasks. Given the ongoing growth of the department we anticipate the need for additional support from Information resources to collect and process data and manage reports. In addition, as our student numbers grow there is an increased need for practicum management.

Physical Therapy Department Personnel

Consistent with the considerable increase in the number of students over the past several years, the Exercise Physiology program has also experienced an increase in the number of tenure-track and non-tenure track faculty (Table 9). The increase in the faculty, staff, and administrative
positions highlights the growth of the undergraduate program and is indicative of the increase in student and faculty within the University at large. In addition, the new tenure-track faculty members have added to the research agenda of the Department and the College of Health Sciences, while the new non-tenure-track faculty members have made significant contributions to service, student retention, advising, and teaching in the Department.

Table 9. Faculty teaching and advising Exercise Physiology students.

<table>
<thead>
<tr>
<th>Faculty Type</th>
<th>AY 2007-08</th>
<th>AY 2014-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenure track: teaching and advising</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Tenure track: advising only</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Non-tenure track: teaching and advising</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Non-tenure track: advising only</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Visiting lecturers: teaching and advising</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Adjunct faculty: teaching and advising</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>8</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

Department personnel and their duties are outlined below.

**Department Chair**

The responsibilities of the Department Chair are located in the MSP contract (http://faculty.uml.edu/msp/contract/contract-2012.htm). Department Chairpersons are charged with responsibility for providing educational leadership within their departments.

Specifically, the Chair shall be responsible for the performance of the following duties:

- The recruitment of candidates for faculty positions within the department,
- The evaluation of faculty members within the department,
- The assignment to faculty of obligations in accordance with the prescribed curriculum,
- The implementation of approved academic standards and policies as they pertain to departmental programs,
- Preparing estimates of future educational, fiscal and physical needs of the Department.

The Department Chair, in consultation with the individual faculty, determines teaching assignments in the undergraduate and graduate programs. These decisions are made based on expertise, research and/or clinical interests, and department needs.

**Exercise Physiology Program Director**

The Program Director assists the Department Chair in planning and administrating the program’s financial resources and works with Admissions and the Coordinator for Student Success for the College of Health Sciences to advise students transferring into the Exercise Physiology program. The Program Director also works with advisors, the Department Chair, and the Curriculum
Committee chair in the continuous review of and academic standing decisions in the Exercise Physiology program. The Program Director serves as the liaison to the American College of Sports Medicine (ACSM) and National Strength and Conditioning Association (NSCA).

Exercise Physiology Program Curriculum Committee Chair

The Curriculum Committee Chair is responsible for coordinating and conducting ongoing program and curricular assessment.

Department of Physical Therapy Program Administrator

The Program Administrator provides academic administrative support to the Department of Physical Therapy and the Program in Exercise Physiology by working with the chairperson, faculty coordinators and students. This includes working directly with undergraduate and graduate students through recruitment, retention and advising; assisting in the development and coordination of exercise physiology practicum experiences; establishing and maintaining student files and records; assisting with program assessment and development (including but not limited to BS to MS and/or DPT programs); overseeing the continuity of program changes in department materials; updating and maintaining the department website; analyzing data; working with the chairperson to facilitate department activities, advisory board and alumni relations, professional accreditation; and directing work-study students.

Tenure-Track Faculty

In addition to their teaching responsibilities, tenure-track faculty are also required to provide service to the Department. This service may include serving on a department committee, helping with Admissions events, and advising undergraduate students.

Lecturers (Non-Tenure Track)

In 2010, The University established the lecturer position, which is a full-time, non-tenure track position with categories of Lecturer and Senior Lecturer for the purpose of performing teaching that would otherwise be done by part-time, adjunct faculty and visiting professors, as well as performing service functions.

Adjunct Faculty

Adjuncts are individuals whose part-time teaching relationship with the University is not necessarily temporary, but who are excluded from certain requirements applied to Lecturers because they are fully and primarily employed elsewhere and are performing limited "adjunct" work at or for the university not exceeding the equivalent of one course per semester, such course normally involving a clinical or professional aspect complementing the curriculum and work of the regular faculty. (http://faculty.uml.edu/msp/files/contract2012/2012-Contract-Article-X.pdf).
**Graduate Teaching Assistants**

Full-time teaching assistants are required to work for 18 hours. As part of their responsibilities, they teach undergraduate lab classes and help with tutoring in the Student Resource Room in Weed Hall. They also assist with all Admission events, including the University Open Houses and Welcome Day. This is in agreement with the Graduate Teaching and Research Assistant contract ([http://www.uml.edu/docs/GEOContract-v2_tcm18-105239.pdf](http://www.uml.edu/docs/GEOContract-v2_tcm18-105239.pdf)). These responsibilities are in line with the goals for student success in the Program, the College of Health Sciences, and the University. The amount of money provided for the teaching or research assistantship (TA or RA) for each semester or academic year is set according to agreement between UMass Lowell and the UAW/Graduate Employees Organization.

**Work-Study Students**

At least one work-study student is hired each academic year to help with projects and other tasks in the Department. These students are supervised by the Program Administrator or by the faculty member who might have hired them. The students assist with a variety of tasks including weekly lab cleaning and organization, collecting and organizing practicum paperwork, filing, creating visual aids and updating bulletin boards.

**Material Resources**

Material resources such as space and equipment are utilized daily by faculty and students. Equipment is cared for in accordance with safety and cleaning requirements per the manufacturers to maintain working order of the equipment for the students to use frequently. Faculty and students can utilize equipment for events on campus and in the community. These occasions require signing out the equipment with approval of the Administrator.

**Equipment Resources in Exercise Physiology Laboratories**

The available laboratory equipment resources in Weed Hall (South Campus) are extensive, and include equipment recommended by CoAES for an undergraduate Exercise Science program. Additional equipment not on the CoAES recommended list (Functional Movement Screen evaluation tools, and other equipment) help fulfill the learning needs of undergraduate and graduate students and research equipment needs of the department faculty. (See Appendix H for an equipment list.)

**College and University Resources Available to Faculty and Students**

**Classrooms**

Classrooms (Weed Hall):
- Weed Hall Lecture Hall 1: 2025 sq.ft; capacity 153 students
- Weed Hall Lecture Hall 2: 1725 sq.ft.; capacity 148 students
• Weed Hall Lecture Hall 3: 1725 sq.ft.; capacity 157 students
• Weed Hall Room 318: 600 sq.ft.; capacity 45 students

Laboratories assigned to the Physical Therapy Department:
• Weed Hall Room 304: 700 sq.ft.; capacity 17 students
• Weed Hall Room 306: 700 sq.ft.; capacity 17 students
• Weed Hall Room 310: 725 sq.ft.; capacity 17 students
• Weed Hall Room 312: 725 sq.ft.; capacity 17 students
• Weed Hall Room 316: 725 sq.ft.; capacity 17 students

Learning Resources and Library Systems:
• O’Leary Library, South Campus
• Lydon Library, North Campus
• Media Services, O’Leary Library, South Campus

Centers for Learning and Academic Support Services:
• South Campus: O’Leary Library 1st floor
• East Campus: Fox Hall 6th floor
• North Campus: Southwick 308
• Advising Center
• Tutoring Services
• Write Place & ESL Support, O’Leary Library 3rd floor

Computer Services

The College of Health Sciences has two computer laboratories in Weed available for EP students. These labs are open 8:30 AM – 9 PM Monday through Thursday, and 8:30 AM – 6 PM on Fridays. The labs are not open on weekends, holidays, or weather related closings. A student must have a valid ID card to use the computer lab resources. These labs are also used for classes throughout the school year.

1. Weed 212
This lab consists of 24 Dell workstations and one teaching station. There is also a print station consisting of one Dell computer and a HP LaserJet 4200 Series printer in the front of the room. These machines contain the standard Microsoft Office Suite as well as Adobe Acrobat, SPSS, ArcGIS, and the nursing specific software such as NCLEX 3550 and the MediSims. They also contain the browsers and other software needed to complete homework and online class work.

2. Weed 216
This lab consists of 17 Dell workstations and one teaching station. There is also a print station consisting of one Dell computer and a HP LaserJet 4200 Series printer in the front of the room. These machines contain the standard Microsoft Office Suite as well as Adobe Acrobat, SPSS, and the nursing specific software such as NCLEX 3550 and the MediSims. They also contain the browsers and other software needed to complete homework and online class work.
Faculty Offices

- Weed Hall (8 offices): Professors Murphy, Fox, Dybel, Seymour, Kahn-DeAngelo, Coffey, White, Moriarty-Baron
- O’Leary Library (6 offices): Professors Ferrara, Collins, James, Wu, Lewis, Mendes

Designated Study Areas

Students in the Exercise Physiology program have access to a variety of locations for group and individual study. O’Leary Library offers quiet study areas dedicated to students throughout the fourth floor as well as private and semi-private areas throughout the first floor; rooms are equipped with dry-erase boards and large tables which stimulate the critical thinking and collaborative efforts of the students. Student lounge/study areas are also available in Weed Hall.

Student Resource Center

The Student Resource Center on the first floor of Weed Hall provides tutoring services for core science and professional classes in the College of Health Sciences, including Anatomy and Physiology, Physiological Chemistry, General Physics, and Exercise Physiology Professional courses. Students are able to "drop in" without an appointment. They can talk to a tutor or use the area as a quiet place to study and review. The Resource Center also provides study materials for students, including practice tests and lab models for review and learning. The Resource Center was expanded in fall 2014. Hours are 9 AM to 5 PM, Monday through Friday.
VI. Program Assessment

The program assessment is based on data collected for this report and alignment with the strategic plan and the mission of the university.

Student Learning

The evaluation process of student learning has utilized student faculty evaluations and quantitative and qualitative feedback on the program curriculum via the Senior Student Exit Surveys (see Appendix G). Data compiled from the 2012, 2013, and 2014 surveys revealed that 75.3% of graduating students perceived faculty facilitated student learning "to a very large or large extent." Additionally, 73% of the students perceive that they have developed the ability to implement a self-directed plan for professional development and lifelong learning which includes self-assessment, self-correction and self-direction to a "to a very large or large extent." These outcomes indicate that our faculty enhance student learning. However, subjective feedback obtained from the same surveys convey a level of dissatisfaction in some courses due to a lack of organization of the material, limited intellectual stimulation or a low regard for the information presented. Although a few courses are mentioned specifically, the variability within the survey format and the fluctuations in faculty teaching load make it difficult to ascertain the precise source of the students’ discontent. The faculty curriculum committee informally reviews the subjective comments each year, and considers student input in evaluation of course content. Faculty responded to the survey feedback and created course revisions. However, the Department lacks a systematic approach to curricular assessment and modification. In order to implement effective change, the Department must undertake concerted efforts to map curricular content, and consider scaffolding of content so courses present new or more advanced information. Despite the fact that it may be uncomfortable for faculty to examine the quality of their pedagogy, an introspective analysis by the curriculum committee is warranted based on the review of these surveys.

Student success

Students in the Exercise Physiology program are provided a learning environment that promotes student success; on their exit surveys, 90% of students rated the classroom and laboratory environment to be average or above average. Strengths of the program that promote student success include support services provided through the University and the College of Health Sciences, new technology resources utilized in the classroom, academic advising, and support by peers through the H.E.A.L.L. Community and the Exercise Physiology Club. Retention and graduation rates for students who enter as freshmen continue to be higher than the University average.

Reasons students to switch to another major

Not all students who are accepted to UMass Lowell as Exercise Physiology majors remain in the major. The major reason an Exercise Physiology student changes his/her major is not meeting the academic standards of the program, which is maintaining a 2.5 or higher overall, science, and
major GPA. (See Exercise Physiology Student Manual at http://www.uml.edu/docs/EP%20Student%20Manual%20-%20Class%20of%202018_tcm18-154071.pdf). Once a student has been dismissed from Exercise Physiology, he/she must change his/her major in order to stay at UMass Lowell. We do not document if these students change their majors and continue at UMass Lowell or if they leave the university. In the future, it will be important to monitor reasons for probation, dismissal, and if these students remain at UMass Lowell. This information may assist faculty in retention efforts.

The retention and graduation rates for transfer students to the Exercise Physiology program require examination, as the analysis of data collected suggests that transfer students may have more difficulty with academic success in the Exercise Physiology program. Methods to increase the retention and graduation rates of transfer students should be explored.

The EP curriculum committee has discussed a plan for improving the academic success of transfer students, which would include a required New Transfer Student Seminar course in the Exercise Physiology program. In addition, advisors need appropriate training to be familiar with issues specific to transfer students. Because of the particular needs of transfer students, it may be prudent to designate two or three faculty to act as transfer-student advisors who function in a similar fashion to the freshman advisors. The program will also continue to evaluate the criteria for acceptance to the program and determine if the 2.5 overall GPA is appropriate or if a higher standard may be needed to ensure student success.

Exercise Physiology students also change their major as a result of changes in their career goals or interests. Although the faculty advisors are involved in this process, there is no formal tracking of these changes in major. In the future, it will be important to monitor the number of students who change their major and the reasons for this decision. This information may help in making changes that will improve student success, advisement, and career discernment.

**Attracting and retaining underrepresented student populations**

A major goal of the University, the College, and the Department is to increase the diversity of the student population and to increase the rate of success for minority students. Although the University tracks the diversity of the student population, we have not been tracking the diversity of students in the Exercise Physiology program. Thus, we do not have the data to measure the differences in retention, graduation rates, or student success in these groups. This information will contribute to determining the reasons for success and failure in Exercise Physiology students who come from underrepresented populations.

The University, College, and Department are committed to hiring diverse faculty. This is one strategy for attracting diverse students. The Department adheres to the university policies, and their focus on diversity, during faculty search, selection and hiring processes.

**Graduate success in the workplace**

Data collected from graduating seniors suggest that senior Exercise Physiology students are confident of their abilities to compete in the workplace. The Department does not follow up with graduates after graduation, nor do we contact employers of graduates of the Exercise Physiology
program. We rely on graduates sharing their stories of success. Going forward, the Department should investigate objective methods to capture information regarding graduates’ professional success, including the students' career goals while in the program and written or oral information from graduates and their employers following graduation.

**Career goal accomplishment**

Many of the EP freshmen have career aspirations of attending the DPT program at UMass Lowell. The DPT yearly cohort is 36. Many of the EP freshmen will alter their original career goals over their undergraduate careers. There is agreement that further discussion is warranted to examine curricular choices, evaluate, and monitor the process for supporting student career goal accomplishment.

**Faculty Scholarly Productivity**

University of Massachusetts Lowell’s Office of Research Administration tracks scholarly productivity for all faculty. In comparison to other departments in the College of Health Science, the grant funding by Department of Physical Therapy faculty is the lowest in the College. Teaching has been a top priority for the department. Historically, the Department of Physical Therapy, including the Exercise Physiology program, maintains a strong academic curriculum with high-achieving students. Consistent with other faculty in the College of Health Sciences, the EP program faculty workload is 9 credits per semester. More recently the contractual language has changed to provide reduced workload for "research active" and "research productive" faculty. The change in language is designed to reduce teaching loads for faculty who are engaged in research, and a few faculty apply for the reduced teaching load each year. Also within the last four years, the University has created the position of Lecturer. The focus of the Lecturer is teaching and service, which is intended to offset the teaching load of research faculty.

The graduate program collects data for an annual accreditation report. In looking at 2009 through 2014, the number of peer-reviewed articles published by our faculty has declined. The termination of one of the department’s researchers occurred in June 2103. This resulted in the reduction of the number of peer-reviewed articles. In 2009, sixteen articles were published, while in 2014 seven articles were published (see Table 5). There are several reasons that may explain this decline. One reason is that the instructions for completing the form have changed. The instructions now clearly state that if two faculty members are co-authors on an article this should be counted only once under the first author. It cannot count again under the faculty member who was second author. It is likely that articles were included more than once with the intention of identifying all faculty who had participated and published scholarly articles that year. Another reason for the decline in peer-reviewed publications may be that as a department, we have been undergoing growth, active strategic planning, and participation in many committees. These activities all take time, which detracts from the time spent on scholarly output. Traditional measures of faculty scholarly productivity such as impact factor, number of publications and research dollars do not measure the influence of our scholarly activity on clinical practice.
Departmental research trajectory

Until recently, the Department enjoyed a stable workforce for more than 20 years. However, in the last few years, faculty have retired. Two recent hires (in the last year) have been strategic hires to increase interdepartmental collaboration and faculty scholarly productivity. The strategic hiring has been focused around an area of collective expertise of motor control and movement dysfunction. Additionally, a position in the department remains open at this time.

Capacity for access to available grant funding

Faculty can chose to receive daily emails regarding available grant funding through the SMARTS database. The Office of Research Administration dedicates one staff person to work with the College of Health Sciences. Although these supports are available, efforts to initiate the connection have been limited by the factors previously discussed.

Competitive infrastructure

Research laboratory space is at a premium as the University expands in student numbers and faculty. Several faculty candidates for tenure-track positions expressed concerns about laboratory space and ultimately did not accept the job offer from the University of Massachusetts Lowell.

During a recent conversation with the Department faculty, the Provost stated that the potential for additional research laboratory space exists and would be made available to the department depending on need.

Resource Management

Impact of courses taught by part-time or adjunct faculty on student learning and curricular coherence

Full time faculty members teach all core lecture courses in the junior and senior years of the EP curriculum. Lab sections are taught by a combination of full-time faculty, adjunct faculty, and graduate teaching assistants. Adjunct faculty are not rehired if the student evaluations are below a 3.5 out of 5. As the number of adjunct faculty has grown to accommodate the rise in student enrollment, the demand for improved communication and coordination between lecture and laboratory content has increased. The department is lacking a policy regarding the oversight and management of lab equipment, teaching assistants or adjunct faculty. Creating a policy regarding full-time faculty engagement, evaluation, and faculty development is critical as the department manages the increase number of students in the EP program.

Compromise between class size and student engagement

In order to optimize learning and maintain student engagement, the Office of the Provost has recommended laboratory classes have an enrollment cap of 17 and lecture cap enrollment of 50.
All lecture courses (except for Exercise Prescription) have several sections. The Department strategically chose to incrementally increase the number of sections to manage the teaching workload and plan for instructors. The Chair has provided a TA to lecture classes over 50 to maintain the quality of instruction and optimize student engagement. The Dean has provided funding to hire graduate hourly workers to assist faculty with large classes. Dealing with increasing numbers of EP students and regulating appropriate class size adds to the responsibilities of the Department Chair and Exercise Physiology Program Director and taxes the resources of the department. Since a limit on the total number of students allowed into the EP program has not been established, this is an area of concern for our department. Fiduciary and personnel resources need to be proportional to the number of students.

**Compromise between the number of distance-learning sections and student engagement**

All courses required in the Exercise Physiology program meet on campus and there are no exclusive distance-learning sections. Many instructors are gravitating toward a "blended" approach to teaching and learning employing the use of Blackboard or other online tools to enhance the student learning experience. To support this trend, all faculty are required to attend Blackboard training and have the option to attend ongoing faculty development courses specific to use of technology and distance learning. At this time, there is no formal process to evaluate the effectiveness of distance learning.

**Use of discretionary income (overhead generated by research grants)**

The issue of appropriate use of discretionary income is minimal as the department receives little to no overhead generated by research grants. As new research faculty are employed with an anticipated increase in number of funded grants it would be prudent to consider generating policies to guide the distribution of discretionary income.

**Departmental Engagement**

**Faculty knowledge regarding colleagues' work**

Department faculty experience limited opportunities to gain knowledge regarding the work of their colleagues. Faculty meetings are devoted to the business of running the department. Curriculum meetings have been devoted to curricular issues, program assessment and student issues. In order to celebrate individual and departmental accomplishments, the Department has employed the use of social media to involve faculty, students, alumni and professional associates. The site is updated on a regular basis and viewed by many stakeholders of the program ([https://www.facebook.com/UMassPT](https://www.facebook.com/UMassPT)).

Last year, a "Snack and Learn" faculty development series was implemented on a monthly basis to specifically increase departmental engagement. These sessions have been well attended by the faculty and going forward the array of topics will be expanded to increase faculty collaboration and engagement.
The Department employs several current strategies to highlight faculty’s research and community engagement through presentations to the yearly Departmental Advisory Board and showcasing projects on bulletin boards. Highlighting engagement of undergraduate EP students in faculty research is an additional mechanism to showcase faculty research and collaboration.

**Faculty share a vision and collective responsibility for the work of the Department**

The DPT program was originally a BS program. When the BS in Physical Therapy transitioned into a Masters program, the EP program was created as a feeder program. The historical context of the program has created a division between the undergraduate and graduate programs as faculty possess differing areas of clinical practice and academic expertise. Therefore, some department faculty teach in only one of the programs and some teach in both. These differences, autonomous professional goals and escalating student numbers contribute to imperfect internal communication and hinder a shared vision for the department. Several strategies have been employed to bridge the gap through strategic committee membership and these strategies will need to expand as the Department grows.

At this point in the program, the Department continues to struggle with the concept of a shared vision. Contributory to this is the fact that the leadership at the level of chair, Dean and higher up has fluctuated.

Recent efforts to foster departmental engagement include the hiring of new research tenure-track faculty, conducting a departmental strategic plan in spring 2014 with an external facilitator and creating committees with faculty from both programs. Additionally, faculty have begun working together to plan student activities that involve both undergraduate and graduate students. Going forward, the department should continue to implement measures that blur the lines between programs in order to fortify cohesiveness.
Appendices

A: Fall Syllabi
B: Spring Syllabi
C: CoASE Job Task Analysis Table
D: Student Practicum Evaluation Form
E: Faculty CVs
F: Faculty and Course Evaluation Form
G: Senior Student Exit Surveys
H: Lab Equipment, Weed Hall
Appendix A: Fall Syllabi
I. Title: Freshman Seminar for Exercise Physiology Majors (38.101)

II. General Information:
   Faculty:
   Dr. Cynthia Ferrara
   Office: O’Leary Library, Room 540M
   Phone: 978-934-4399
   E-mail: Cynthia_Ferrara@uml.edu
   Office hours: Tuesday 9-11 am, Fridays 12-1 pm

   Dr. Andrea Mendes
   Office: O’Leary 540I
   Phone: 978-934-4483
   E-mail: Andrea_Mendes@uml.edu
   Office hours: Tues and Thurs 2-3 pm, Friday 11-12

   Ms. Bryanna Hawkins, M.S.
   Office: I will meet with students in Weed 100 (Student Resource Center)
   Email: Bryanna_Hawkins@student.uml.edu
   Office hours: Friday 12-2 pm

   Credit hours: 1
   Class hours: 1 hour of lecture per week
   Meeting time: Tues 3:30-4:20, Thurs 3:30-4:20
                  Friday 10:00-10:50 or 11:00-11:50

III. Course Purpose:
The Freshman Seminar will introduce new students to the Exercise Physiology Program, UMASS Lowell, and the College of Health Sciences. Class participants will participate in weekly activities to improve study skills, communication skills, and problem solving. They will also learn important information about careers in Exercise Physiology and health-related fields.

IV. Course objectives:
1. Demonstrate an understanding of the Exercise Physiology major, academic policies, and program requirements.
2. Develop an understanding of different time management strategies and how to use them
3. Understand what plagiarism and academic dishonesty are and develop strategies to recognize and avoid them.
4. Demonstrate an understanding of the Physical Therapy Department Honor Code and how it is important in school and work.
5. Explore the importance of ethical behaviors and professionalism in the classroom and the workplace.
6. Learn about career options with a degree in Exercise Physiology.
7. Develop a basic understanding and respect for people with disabilities.
8. Develop an understanding of diversity and cultural competency and how your attitudes about different cultures might affect your behaviors.

9. Understand the Healthy People 2020 initiative and the goals for physical activity and healthy eating.

Teaching Methods: Group discussions, reflective writings, individual and group assignments

V. Required/Recommended Texts:
None. Any required readings will be provided on course website or in class.

VI. Attendance:
All students are expected to attend class and be punctual. Students who will be absent from class must email the instructor in advance of the class meeting when possible. Students should immediately notify the instructor about conflict between their religious observance and course due dates/examinations. Information on University attendance policies can be found in the online Undergraduate Student Manual:

http://www.uml.edu/Catalog/Undergraduate/Policies/Attendance-Policies.aspx

Students should expect to lose one point off their final grade for every class that they do not attend.

VII. Professional Behaviors:
It is expected that all students will demonstrate professional behavior toward the instructor and fellow students. On any given day if a student is disrespectful or disruptive to the instructor or the class and is asked by the instructor to leave, the student is not to return to the class until meeting with the instructor and academic advisor.

In this class, and in all classes at the University of Massachusetts Lowell, students are expected to exhibit professional and respectful behavior that is conducive to a mutually beneficial learning environment in the classroom. Examples of inappropriate behavior include: text messaging during class, listening to music, or other cell phone use (other than the campus alert system), late arrivals, early departures, failure to follow instructor directives, and talking or otherwise disrupting the class. Students in violation of these standards may be asked to leave class and/or be referred to the Chair of the Physical Therapy Department and/or Dean of Students for disciplinary action.

VIII. Evaluation Methods:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>1 point for each class (13 points total)</td>
</tr>
<tr>
<td>Reflective and group writing assignments</td>
<td>10 points each (6 writings, 60 points)</td>
</tr>
<tr>
<td>Interview of a Medical Professional</td>
<td>10 points</td>
</tr>
<tr>
<td>Focus assignment and reflection</td>
<td>30 points (20 pts Focus, 10 pts reflection)</td>
</tr>
<tr>
<td>Time log and reflection</td>
<td>20 points (10 pts log, 10 pts reflection)</td>
</tr>
<tr>
<td>Quizzes (announced and unannounced)</td>
<td>7 points</td>
</tr>
<tr>
<td>Total points</td>
<td>140 points</td>
</tr>
</tbody>
</table>

Students should expect to lose one point off their final grade for every class that they do not attend.
IX. Grading:

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93-100%</td>
<td>A</td>
</tr>
<tr>
<td>90-92.9%</td>
<td>A-</td>
</tr>
<tr>
<td>87-89.9%</td>
<td>B+</td>
</tr>
<tr>
<td>83-86.9%</td>
<td>B</td>
</tr>
<tr>
<td>80-82.9%</td>
<td>B-</td>
</tr>
<tr>
<td>77-79.9%</td>
<td>C+</td>
</tr>
<tr>
<td>73-76.9%</td>
<td>C</td>
</tr>
<tr>
<td>70-72.9%</td>
<td>C-</td>
</tr>
<tr>
<td>67-69.9%</td>
<td>D+</td>
</tr>
<tr>
<td>63-66.9%</td>
<td>D</td>
</tr>
<tr>
<td>&lt;63%</td>
<td>Fail</td>
</tr>
</tbody>
</table>

Students must earn a grade of C or higher in the class in order to remain in the Exercise Physiology program.

The instructor reserves the right to change a student’s final grade as much as 5% (higher or lower) based on class participation and professional behaviors.

X. Academic Dishonesty and Cheating

All students are advised that there is a University policy regarding academic integrity. It is the students' responsibility to familiarize themselves with these policies. If necessary, contact your advisor regarding these policies.

http://www.uml.edu/Catalog/Undergraduate/Policies/Academic-Integrity.aspx

Students who are found to be representing another student’s work as their own or otherwise plagiarizing another’s work will receive a “0” for the assignment. If this occurs more than once in the semester, the student will receive an automatic “F” in the class.

XI. Student Disability Services:

If you have or believe you have a disability (such as a learning disability, hearing impairment, etc) for which you wish some modification of typical classroom instruction or testing, contact your advisor and the instructor within the first week of classes, so the necessary modifications can be made as soon as possible. If you are uncertain about the nature of the disability or appropriate strategies to accommodate that disability, please contact your advisor, the instructor, and the Student Disability Services (http://www.uml.edu/STUDENT-SERVICES/disability/) within the first week of classes for testing.

XII. Services for Learning:

The UMass Lowell professionals who work in the Division of Student Affairs are committed to providing a seamless system of support that encourages development of the individual as a whole, including physical, emotional, social, academic and career goals. More information about services provided can be found at the following link:

http://www.uml.edu/STUDENT-SERVICES/

XIII. Cell Phone (and other devices) Policy

While in class students are expected to have their cell phones, beepers and other noise producing gadgets and devices turned off. During exams there will be no cell phones or other
XIV. **College of Health Sciences Social Media Policy**
The College of Health Sciences recognizes that all involved in health care have a moral, ethical and legal responsibility to maintain individual’s rights to privacy. HIPAA protects patient privacy by law and includes any individually identifiable patient information in oral or recorded form where the information could identify an individual by name, medical condition, demographic data or other means. Students are expected to act with honesty, integrity and respect the privacy rights of others. All students in College of Health Sciences are expected to meet their professional responsibilities when using social media and other electronic networks including but not limited to blogs, instant messaging, social networking sites, email, public media sites and photographs. This policy prohibits posting written material or photographs that identify patients, health care agencies, educational institutions or other students in clinical sites or patient related activities. This policy applies whether using University devices and computers or personal equipment. In addition, all College of Health Sciences students are required to abide by clinical agency policies related to the use of social media and technological resources. Failure to adhere to this policy may result in probation, suspension or dismissal from the College of Health Sciences and/or legal prosecution under the requirements of HIPAA.

Please check out additional College of Health Sciences policies at the following link:

[http://www.uml.edu/health-sciences/Current-Students/Student-Policies.aspx](http://www.uml.edu/health-sciences/Current-Students/Student-Policies.aspx)
XIV. Description of Assignments and Grading:

Assignments must be completed and submitted by the beginning of class to receive full credit. Any assignment submitted late (after the start of class) will receive a “zero”.

Reflective writing and group writing assignments are worth 10 pts each. Writing assignments should be typed, single-spaced, one page in length, and submitted on Blackboard, the online site for the class. The instructor may also request that students hand in a hard copy of any writing assignment instead of submitting it on Blackboard. No hand-written assignments will be accepted. Assignments will be graded on the following scale:

0= not done (zero on the assignment)
1= incomplete or not meeting the requirements for the assignment (half credit)
2= completed (full credit)

Specific Assignments and point values:

**Due second class 9/12:** Reflective writing on “Why did you choose Exercise Physiology as your major?” (10 pts)

**Due third class 9/19:** 3 day time log and reflective writing
Create a time log for 3 days (2 week days and 1 weekend day) showing what you did on each of those days. Write a one page reflection. Your reflection should include your opinion on how well you utilized your time over the days you logged. Are there any areas which you could improve? Develop a plan for utilizing your time better. (10 pts for the log, 10 pts for the reflective writing)

**Due fourth class 9/26:** Reflective writing on the importance of adhering to the Honor Code and using ethical behaviors in the classroom and workplace. (10 pts)

**Due fifth class 10/3:** Career Readiness “Focus” survey (see instructions at end of syllabus, 20 pts for the Focus survey). After completing the Focus survey, write a one page reflection on your career goals (using your Focus results as a springboard) and some steps you can take to accomplish these goals (10 pts for the reflective writing).

**Due eighth class 10/24:** Interview with a PT/OT/Health Professional writing assignment (see instructions at end of syllabus, 10 pts)

**Due tenth class 11/7:** Reflection on “Careers in Exercise Physiology” activities. How did the class activities, discussions, and experiences change or influence your career choice? (10 pts)

**Due eleventh class 11/14:** Reflective writing on Disability activities. Write a reflection about the particular disability you portrayed in class. How did it change your perception of disability? Do you think the activities will change how you interact with people with disabilities? Share you own experience with disability, if you have any. (10 pts)

**Due twelfth class 11/21:** Healthy People 2020 Group writing assignment (see instructions at end of syllabus). (10 pts)

**Due last class 12/5:** Reflective writing.
Write a letter to yourself describing your first semester in college and what it means to you. Was it a good experience? What will you change next semester and what will you do the same? How have your views on the Exercise Physiology major and possible career options changed since the beginning of the semester? (10 pts).
## Course calendar and instructional activities: (subject to change)

<table>
<thead>
<tr>
<th>Dates</th>
<th>Topic</th>
<th>Assignments/Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 7-13</td>
<td>Time Management Strategies</td>
<td>Reflective Writing Why did you choose Exercise Physiology as your major?</td>
</tr>
<tr>
<td>Sept 14-20</td>
<td>Academic Integrity and the Honor Code</td>
<td>3-day Time log and writing reflection Sign Honor Code</td>
</tr>
<tr>
<td>Sept 21-27</td>
<td>Ethical behaviors in the classroom and workplace</td>
<td>Reflective writing on Honor Code</td>
</tr>
<tr>
<td>Sept 28- Oct 4</td>
<td>Career Readiness Discussion</td>
<td>Focus assignment and reflective writing</td>
</tr>
<tr>
<td>Oct 5-11</td>
<td>Preparing for Advising (or Library Resources)</td>
<td>In class quiz on advising information</td>
</tr>
<tr>
<td>Oct 12-18</td>
<td>Library Resources (or Preparing for Advising)</td>
<td></td>
</tr>
<tr>
<td>Oct 19-25</td>
<td>Careers in Physical Therapy, Health Professions</td>
<td>Interview with PT/OT/Health Professional</td>
</tr>
<tr>
<td>Oct 26- Nov 1</td>
<td>Careers in Exercise Physiology</td>
<td></td>
</tr>
<tr>
<td>Nov 2-8</td>
<td>Understanding Disability</td>
<td>Reflection on “Careers in Exercise Physiology” activities</td>
</tr>
<tr>
<td>Nov 9-15</td>
<td>Understanding Diversity</td>
<td>Reflection on Disability Activities</td>
</tr>
<tr>
<td>Nov 16-22</td>
<td>Healthy People 2020 and Healthy behaviors</td>
<td>Healthy People 2020 group writing assignment</td>
</tr>
<tr>
<td>Nov 23-29</td>
<td>Only Tuesday class meets</td>
<td></td>
</tr>
<tr>
<td>Nov 30- Dec 6</td>
<td>Open Discussion</td>
<td>Last reflective writing due</td>
</tr>
</tbody>
</table>
Career Services Focus Assignment Instruction sheet

These instructions will help you to get started with Focus. They are not specific instructions for the class assignment.

What is FOCUS? FOCUS is a self-paced, online career and education planning tool that will enable you to assess your skills, interests and values and explore career fields and major areas of study that are most compatible with your assessment results. Students who use FOCUS make better decisions about their goals and learn how to self-manage their careers.

How to Create Your Student User Account in FOCUS:
1. Start at the Career & Co-op Center homepage:  
   http://www.uml.edu/student-services/career-services/
2. Click on “FOCUS” (located in the Resources area on the right hand side of the page)
3. Select “If you need to create new account, click here.”
4. Enter the following Access Code: uml123
5. Enter your personal information (user name and password are case-sensitive).

- You must complete an entire assessment for FOCUS to save your results.
- Be sure to save your preferred majors and occupations with your comments.
- You may use FOCUS as often as you wish anywhere, anytime (24/7) on any PC or MAC.
- You can use the FOCUS Main Menu tools in any order and repeat any assessment.
- Once you have completed an assessment, a check mark will appear next to it in the Main Menu.

Use FOCUS to Help You:
Choose Your Major Area of Study
The FOCUS system enables you to identify occupations that best match your personal attributes and the major / education requirements for those occupations. You should review the occupations that most appeal to you as potential career goals paying particular attention to the education programs, degrees required, courses, skills, requirements and certifications needed to prepare you to work in those occupations.

Narrow Down Your Options
Select Combine the Results of Multiple Assessments. This allows you to combine the results from the assessments you have completed to help you narrow down your occupation results.

Further Explore a Major Offered at UMass Lowell
Select “What can I do with a major in…?” (found in the Main Menu) to review the occupations that a specific major will typically prepare you for.

Verify Your Preferences or Early Choice of a Career Field
It’s best to verify or validate your early decisions about your career goals and study programs so that you do not overlook career options that are compatible with your personal attributes. You are a multi-potential person and undoubtedly have talents, interests, values and skills that qualify you for a wide range of occupations.

Be sure of your choice by completing all of the following FOCUS assessments in the Main Menu so you can discover the occupations and career fields that match your assessment profiles. Once you have broadened your career horizons you can narrow your options by comparing the critical features of the occupations that appeal to you. This process will assure that you have made the best possible choice.
FOCUS MAIN MENU FEATURES

You need to complete the Career Readiness and Self Assessment sections to receive full credit. Remember to take a screen shot of the completion report and send it to your instructor. Your name should appear in the screen shot.

Career Readiness

Career and Educational Goals: Enter your career and educational goals
Academic Strengths: Specify your academic strengths and weaknesses
Your Work Experiences and Accomplishments
Career Planning Status: Determine where you are in your career planning
Personal Development Needs: Identify your personal development needs

Self Assessment

Work Interest Assessment: Assess your work interests and explore matching occupations
Personality Assessment: Assess aspects of your personality and explore matching occupations
Skills Assessment: Assess your skills and explore matching occupations
Values Assessment: Assess your values and explore matching occupations
Leisure Interest Assessment: Assess your leisure interests and explore matching occupations.

This next section can help you to explore different careers. This is not required for the class assignment, but you may find it helpful as you decide what you want to pursue for a career.

Explore the Possibilities

Search by Name: Allows you to search for occupations by name
Search by Industry: Allows you to search for occupations by industry
What can I do with a major in...? Allows you to explore majors
Compare Two Occupations Side by Side: Allows you to compare 2 occupations of your choice

Your Personal Portfolio

Review & Update Your Saved Careers
Review & Update Your Saved Majors
Review and Print Your Portfolio

Recommended Tools & Websites: Link to helpful information, including a calendar of upcoming events!

ADDITIONAL FEATURES

Select “UPDATE MY ACCOUNT” in the upper right-hand corner of the Main Menu to change your user name or password or add details to your portfolio including uploading a photo.

If you forget your logon information, go to the logon screen and select “If you have forgotten your username or password, click here”. Your logon information will be emailed to you shortly.
Specific Instructions for the Focus Assignment and reflective writing:
You should complete all parts of the **Career Readiness** (Career and Educational Goals, Academic Strengths, Work Experiences and Accomplishments, Career Planning Status, and Personal Development Needs) and the **Self-Assessment** sections (Work Interest Assessment, Personality Assessment, Skills Assessment, Values Assessment, and Leisure Interest Assessment). Refer to the instruction sheet at the end of the syllabus.
When you have completed this assignment, take screen shot and send it to your instructor. Your name should appear in the screen shot.

The completion report is a single sheet of paper and should look like the picture below. It should have your name in the top or lower corner, so that we know it was printed from your account.

After taking the Focus assessment, post to Blackboard your career goals, using your Focus results as a springboard and some steps you can take to accomplish these goals.
Careers in Physical Therapy/Occupational Therapy/Health Care Assignment:

1. You will find a physical therapist or health care professional to interview. This may be conducted over the phone, email or in person. The person may be currently working or retired from the field. Please type your interview; 1-2 pages. Please use the following 5 questions in your interview:

   - How did you pursue your career choice; what steps did you take to prepare yourself for this decision?
   - What type of setting do you work in?
   - Can you talk about your patient/client caseload; what types of patient/client problems do you encounter?
   - What is the most difficult aspect of your job?
   - If you could advise a student interested in becoming a physical therapist, what three things would you tell them?

2. Please post to Blackboard by the time of your class.
3. Be prepared to discuss your findings in class.

Healthy People 2020 Group writing assignment

1. Review the links provided for “Healthy people 2020 Framework” and “Leading Health Indicators: Progress Update”

2. Based on the topic area your group was assigned, reflect and answer the following questions.
   - Identify your topic area and the indicator(s) that have been put into place (what goals have been established by Healthy People 2020).
   - Reflect and prepare to discuss what role you (as an Exercise Physiology student) could take in this initiative.

Please POST your answers (1 per group) to Blackboard by the start of class time.

ALL groups will review the 2 links below:
Healthy People 2020 Framework

Leading Health Indicators: Progress Update
Course Instructor:
Dr. Kyle F. Coffey, DPT
Office: TBA
Phone: TBA
Email: Kyle_Coffey@uml.edu
Website: http://kcoffeydpt.wiki.uml.edu
Office Hours: M 1:00-2:30pm, R 10:00-11:30am

Lab Instructors
Monday Section 801 (8 AM) - Britt Kastrabab
Tuesday Section 802 (8AM) - Dr. Kyle Coffey
Tuesday Section 806 (11AM) - Britt Kastrabab
Tuesday Section 807 (3 PM) - Michael Dellogono
Wednesday Section 803 (8 AM) - Britt Kastrabab
Thursday Section 805 (8 AM) - Michael Dellogono
Friday Section 806 (8AM) - Michael Dellogono

Course Description
This course focuses on the oxygen transport system including bioenergetics, neuromuscular, cardiovascular and pulmonary physiology. Clinical components of the course address diseases of and rehabilitation for cardiovascular and pulmonary systems. You will be required to assimilate material previously learned about human anatomy, physiology, chemistry and physics with material learned in this course to form an integrated understanding of the responses and adaptations of the human system to exercise.

At the completion of this course you will understand the acute responses and chronic physiologic adaptations to exercise, including some of the static and dynamic factors (variables) that influence such responses and adaptations.

The course is organized to develop your critical thinking as an active participant in the classes. You will always be able to ask me to clarify the expectations of the course or an assignment. You will need to be prepared for each class. Evidence of lack of preparation is reason to be asked to leave the lecture (See Expectations).

The course is taken concurrently with a Laboratory component, 38-307. The laboratory experiences allow you to observe the concepts discussed in the course; develop the psychomotor skills necessary for practical applications; work collaboratively in groups; and develop skills in scientific method including written communication. Students are expected to develop practical skills in the laboratory consistent with current standards of practice, learn to administer exercise tolerance tests, interpret and present exercise test data, and develop simple assessment protocols for evaluating functional capacity.

Prerequisites:
All freshman and sophomore courses as outlined in the Exercise Physiology Curriculum.
Course Goal:
The student will describe the integrated and coordinated function of cardiovascular, pulmonary, neuromuscular and bioenergetic components of acute response and chronic adaptation to any physical activity; explain the impact of a variety of environmental stressors and/or biological impairments; and explain how exercise can modify risk as well as improve functional capacity.

Expectations (Related to Professional Behavior):
Students are expected:

- Attendance is mandatory. Students must notify faculty regarding absence prior to the start of the class in order for an absence to be an excused absence. Students should immediately notify the instructor about conflict between their religious observance and course due dates/examinations. (http://www.uml.edu/Catalog/Undergraduate/Policies/Attendance-Policies.aspx)
- In the event of an unavoidable absence, you are responsible for contacting a peer in the class to obtain any information or assignments you missed.
- To be on time for all lectures. (If you are more than 5 minutes late on three occasions, any subsequent occasions WILL RESULT in a final course grade reduction of 2 points.)
- To come to class prepared for lecture/discussion. (Not being prepared for class will result in you being asked to leave with that class being counted as an absence and a grade reduction of 2 points.)
- To respect privacy in all communications (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).
- To perform assigned tasks thoroughly and on time. (Assignments will NOT be accepted late and the student will suffer the grade consequences of a zero for said assignment.)
- To demonstrate knowledge of and adhere to departmental/institutional policies (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).
- To practice in a safe manner that minimizes risk to self and others (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).
- To present yourself in a professional manner (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).
- To demonstrate professional behavior during interactions with others (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).
- To communicate effectively in ways that are congruent with situational needs including appropriate body language, written communication, active listening skills and questioning (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).
- To implement a self-directed plan for professional development and lifelong learning; this includes self-assessment, self-correction and self direction (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).

*NOTE: A first offense is universal to all items, and an offense for any other item would then be a second offense. For example: if a verbal warning is provided for not implementing a self-directed plan for professional development and lifelong learning; and a week later the Professor identifies an instance whereby the student is not demonstrating professional behavior during interactions with others, a Written Incident Report will be enacted that outlines all breaches, including the Verbal Warning.
General Policies (Lecture and Lab)

The instructor reserves the right to increase or decrease your final grade by up to 10% for behaviors outlined by the Faculty as required for professional success (see Exercise Physiology Student Manual, section on Generic Abilities) (See Expectations). You are reminded that counting this course towards graduation with Exercise Physiology as your declared major necessitates achieving an overall grade of 2.0 or better. A grade in this course below 2.0 (C) is not acceptable.

Religious Holiday: Students who are observing a religious holiday are excused from class that day but will be responsible for the work missed. Students must speak with the professor before the scheduled class.

Make-up Examinations: Make-up examinations will be given only in specific cases of excused absence (illness, death in the family, or religious holiday). Circumstances that may warrant an absence should be discussed with the instructor before (when possible) the scheduled time of the exam. Failure to notify the instructor as stated may result in a zero for the exam.

Dishonesty and Cheating Statement: All students are advised that there is a university policy regarding dishonesty and cheating, and a department Honor Code. It is the students' responsibility to familiarize themselves with these policies and to adhere to the Honor Code. If necessary, contact your advisor for clarification of these policies or refer to this link:
http://www.uml.edu/Catalog/Undergraduate/Policies/Academic-Integrity.aspx

Special Accommodations: If a student needs special accommodations under the Americans with Disabilities Act in order to achieve course objectives and/or requirements, it is the student's responsibility to contact the faculty advisor and provide documentation from the Office of Disability Services (240 O'Leary Library Building, UMass Lowell South, Ph. 978-934-4574) within two weeks of receiving this syllabus. (http://www.uml.edu/STUDENT-SERVICES/disability/)

Services for Learning: For detailed information contact: Division of Student Affairs, Cumnock Hall, UML North. Ph 978-934-2100 (http://www.uml.edu/STUDENT-SERVICES/)

Social Media and Technology use in the Classroom: Students must follow the policies on social media. Please visit the SHE Student Policies page: http://www.uml.edu/Health-Sciences/Current-Students/Student-Policies.aspx. All cell phones/pagers must be turned off during class time. Personal phone calls, email or texting is not permitted during class or exams. Laptops may be used for class work only. Students engaging in any activities other than class work will be asked to leave class.

Other Areas of Interest:

“Federal regulation defines a credit hour as an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutional established equivalence that reasonably approximates not less than:

1. One hour of classroom or direct faculty instruction and a minimum of two hours out of class student work each week for approximately 15 weeks for one semester or trimester hour of credit, or the equivalent amount of work over a different amount of time; or

2. At least an equivalent amount of work as required in paragraph (1) for other activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours”

Course Objectives

At the end of the semester the student will be able to:

Part I

1. Explain the difference between relative and absolute and provide examples.
2. Explain “aggregation”; “causal”; linear; proportional; non linear; correlation; mean; standard deviation
4. Describe variability - How it is measured – the use of explaining variability in science.
5. Explain the relationship of stress to exercise physiology.
6. Explain the difference between homeostasis and allostasis. Provide an example of a coupled homeostatic and allostatic system in response to a stressor.
7. Explain the consumption of oxygen as a downhill process; and the role as well as relationship of the four required systems for energy production.

Part II

1. Describe the gross structure of muscle.
2. Describe the components of the neuromuscular junction.
3. Describe the process of muscle contraction.
4. Compare and contrast the mechanical properties of different fiber types.
5. Describe the muscle fiber changes that occur with training.
6. Describe the processes of muscular force modulation.
7. Describe motor unit anatomy.
8. Compare and contrast types of motor units.
9. Describe the length tension and force velocity relationship.
10. Describe muscle fatigue and its various mechanisms.
11. Explain why it is important to have two mechanisms for force modulation.
12. Explain coordination from a neuromuscular perspective.
13. Name the parts of the neuron and describe the function of each part.
14. Describe the components of the action potential.
15. Describe the process of how action potentials are generated.
16. Explain the cause and what happens when a cell is refractory to an action potential, what is the relative and absolute refractory period.
17. Explain how an impulse from a neuron is transmitted across the neuromuscular junction.
18. List the parts of the brain and briefly describe their functions.
19. Compare and contrast the branches of the autonomic nervous system.
20. Explain the functions of the muscle spindles and golgi tendons.
21. Describe how spinal reflexes function to control movement.
22. Explain what happens neurologically when you “learn” a new motor activity/skill.
23. Describe the bioenergetic process for creating enough energy for muscle forces from minimal to maximal forces.
24. Explain a sustainable bioenergetic rate of energy production.
25. Explain a non sustainable bioenergetic rate of energy production.
26. Explain how variability between people in muscle fiber composition contributes to variability in physical capacity.
27. Explain why strength gains from resistance training slow down after 8-16 weeks.
28. Pulmonary function is based on two major systems of pressure guided movement – air to lungs (ventilation) and gas exchange (external and internal respiration). Explain how ventilation supports respiration and how respiration supports ventilation.
29. Explain the relationship between movement of the chest wall and ventilation.
30. Describe anatomical and physiological dead space and various factors that influence these phenomena.
31. List and describe ventilatory volumes and flows.
32. Describe the flow of blood through the cardiovascular system.
33. Describe the flow of an action potential during cardiac excitation and relate to the electrocardiogram.
34. Explain the regulation of cardiac output, stroke volume and heart rate.
35. Explain how normal cardiac electrophysiology contributes to normal hemodynamics.
36. Explain how normal hemodynamics contributes to normal cardiac electrophysiology.
37. Explain how the body adjusts CO, how it delivers it to the correct location.

**Part III**

1. Explain how the processes of measuring work are different for the step, treadmill and bike.
2. Explain what determines the bioenergetic rate of energy production and whether a required rate is sustainable or not, how we can measure and/or estimate this rate and the functional significance.
3. Explain why we cannot sprint for 26 miles. Make sure to include something about muscle function in this explanation.
4. How does Muscular Work relate to bioenergetic processes and how does the bioenergetic process relate to oxygen uptake.
5. Explain O2 dept. Is there such a thing as ATP debt. Why.
6. Explain the integrated function of cardiovascular, pulmonary, neuromuscular and bioenergetic components in response to a range of activities; and how the system as a whole sustains itself.
7. Many people say that maximal oxygen consumption is the best measure of endurance capacity; others say it is anaerobic threshold. What do you think. Why.
8. How does coordination impact oxygen consumption.
9. Explain all of the important components to mechanical efficiency and economy of movement.
10. Explain VO2 max as opposed to VO2 peak.
11. Describe the changes in a normal electrocardiogram during an exercise test if abnormal responses are present.
12. Describe the implications of heat, cold and altitude as environmental stressors on the response and adaptation to exercise.

**Part IV**

1. Explain the pathway to disability.
2. Discuss factors associated with disability including functional limitations and self-efficacy.
3. Explain the relative reduction in risk when adopting a lifestyle that includes physical activity.
4. Assess the importance and role of each training principle based on knowledge of previous objectives and apply these principles in exercise prescriptions aimed to improve aerobic functional capacity in people with normal cardiovascular and pulmonary function as well as in individuals with cardiovascular or pulmonary impairments.
5. Assess the importance and role of each component of the exercise prescription based on knowledge of previous objectives and apply these principles in exercise prescriptions aimed to improve aerobic functional capacity in people with normal cardiovascular and pulmonary function as well as in individuals with cardiovascular or pulmonary impairments.
6. Describe the impact of important intra individual factors that influence indication for and response to exercise (both acute and chronic) such as goals, motivation, disease process and pharmacological management of a chronic condition.
### General Information

**Time Allotment**
- Lecture: Contact Hours: 4, Credit Hours: 4
- Lab: Contact Hours: 3, Credit Hours: 1

**Evaluation Methods**
- Quizzes/Case Studies/Presentation: 15%
- Examination I: 20%
- Examination II: 20%
- Examination III: 20%
- Final Exam (cumulative): 25%

**Required Textbook(s)**

**Supplemental Texts**
- A&P, Physics, Intro to Psychology, Physiological Chemistry Textbooks
  - www.acsm.org
- Intro to Statistics, College Writing I textbooks, any texts to support whichever spreadsheet/graphics and/or statistical package you use (Excel, SPSS, Systat, SigmaPlot, SAS, etc)

**Useful Web Resources:**

### Grading Policy

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93 – 100</td>
</tr>
<tr>
<td>A-</td>
<td>90 – 92.99</td>
</tr>
<tr>
<td>B+</td>
<td>87 – 89.99</td>
</tr>
<tr>
<td>B</td>
<td>83 – 86.99</td>
</tr>
<tr>
<td>B-</td>
<td>80 – 82.99</td>
</tr>
<tr>
<td>C+</td>
<td>77 – 79.99</td>
</tr>
<tr>
<td>C</td>
<td>73 – 76.99</td>
</tr>
<tr>
<td>C-</td>
<td>70 – 72.99</td>
</tr>
<tr>
<td>D+</td>
<td>67 – 69.99</td>
</tr>
<tr>
<td>D</td>
<td>63 – 66.99</td>
</tr>
<tr>
<td>D-</td>
<td>60 – 62.99</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 60</td>
</tr>
</tbody>
</table>
## Tentative Schedule of Topics & Readings
*(Class notes often contain additional, IMPORTANT information!)*

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Readings</th>
</tr>
</thead>
</table>
| #1 - 9/1 | Syllabus Review  
Fundamental Concepts/Definitions, Homeostasis & Feedback Systems  
HOME ASSIGNMENT (PPT) - Measurement of Work, Power, and Energy Expenditure | Powers Chapter 1-2 |
| #2 - 9/8 | Review Work, Power, and Energy Expenditure  
Fundamental Concepts/Definitions, Homeostasis & Feedback Systems  
Bioenergetics | Powers Chapter 2-3 |
| #3 - 9/15 | QUIZ - Measurement of Work, Power, and Energy Expenditure  
Bioenergetics  
Exercise Metabolism | Powers Chapter 3-4 |
| #4 - 9/22 | Exercise Metabolism  
Hormonal Responses to Exercise | Powers Chapter 4-5 |
| #5 - 9/29 | Hormonal Responses to Exercise  
Review for Exam 1  
EXAM 1 (W/R): Chapters 2, 3, 4 & 5 | |
| #6 - 10/6 | Exercise and the Immune System  
Nervous System: Structure & Control of Movement | Powers Chapter 6-7 |
| #7 - 10/13 | Nervous System: Structure & Control of Movement  
Skeletal Muscle: Structure and Function | Powers Chapter 7-8 |
| #8 - 10/20 | Skeletal Muscle: Structure and Function  
Circulatory Responses to Exercise  
HOME ASSIGNMENT (VIDEO): EKG | Powers Chapter 8-9 |
| #9 - 10/27 | Circulatory Responses to Exercise  
Respiration during Exercise  
IN-CLASS: EKG Case Studies | Powers Chapter 9-10 |
| #10 - 11/3 | Respiration during Exercise  
Review for Exam 2  
EXAM 2 (W/R): Chapters 6-10 | Powers Chapter 10 |
| #11 - 11/10 | The Physiology of Training  
Exercise for Special Populations | |
| #12 - 11/17 | Exercise Prescriptions for Health and Fitness  
PRESENTATIONS (W/R)- PEDs Effect on Physiology | |
| #13 - 11/24 | Factors Affecting Performance  
Training for Performance | Powers Chapter 19, 21 |
| #14 - 12/1 | EXAM 3 (T/W): Chapters 12, 13, 16-19  
Body Composition and Nutrition for Health  
HOME ASSIGNMENT (PPT): Cardiac & Pulmonary Rehabilitation  
Review of Cardiac & Pulmonary Rehab | Chapter 12, 18 |
| #15 - 12/8 | Finish Remainder of PowerPoints  
Final Exam Review | |
# Performance Enhancing Drugs (PEDs) Presentation Grading Rubric

**Group Members:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Scoring Criteria</th>
<th>Total Points</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organization</strong> <em>(5 points)</em></td>
<td>Information is presented in a logical sequence; transitions between team members are smooth.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Presentation appropriately cites minimum requisite number of professional references (3) within presentation and as reference list at the end of presentation</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Length of presentation is within the assigned time limits (10 minutes)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Content</strong> <em>(10 points)</em></td>
<td>Introduction is clear and establishes a framework for the rest of the presentation; definitions of any terminology are clear.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Presentation contains accurate information relating to the physiological systems.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Appropriate amount of material is prepared and material included is relevant to the overall purpose: (effect of PEDs on physiology, systems and effect on exercise performance/training)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td><strong>Presentation</strong> <em>(5 points)</em></td>
<td>Speakers maintain good eye contact with the audience and use clear, audible voices.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Visual aids are well-prepared, logical, informative, effective, and not distracting.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Information was well communicated by all group members.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Score</strong></td>
<td><strong>Total Points</strong></td>
<td><strong>20</strong></td>
<td></td>
</tr>
</tbody>
</table>
Exercise Physiology I Lab (38.307.801-806)

Course Instructor:
Dr. Kyle F. Coffey, DPT
Office: Weed Hall 210B
Phone: X46462
Email: Kyle_Coffey@uml.edu
Website: http://kcoffeydpt.wiki.uml.edu
Office Hours: M 1:00-2:30pm, R 10:00-11:30am

Lab Instructors
Monday Section 801 (8 AM) - Britt Kostraba
Tuesday Section 802 (8AM) - Dr. Kyle Coffey
Tuesday Section 806 (11AM) - Britt Kostraba
Tuesday Section 807 (3 PM) - Michael Dellogono
Wednesday Section 803 (8 AM) - Britt Kostraba
Thursday Section 805 (8 AM) - Michael Dellogono
Friday Section 806 (8AM) - Michael Dellogono

Course Description
This course focuses on the oxygen transport system including bioenergetics, neuromuscular, cardiovascular and pulmonary physiology. Clinical components of the course address diseases of and rehabilitation for cardiovascular and pulmonary systems. You will be required to assimilate material previously learned about human anatomy, physiology, chemistry and physics with material learned in this course to form an integrated understanding of the responses and adaptations of the human system to exercise.

At the completion of this course you will understand the acute responses and chronic physiologic adaptations to exercise, including some of the static and dynamic factors (variables) that influence such responses and adaptations.

The course is organized to develop your critical thinking as an active participant in the classes. You will always be able to ask me to clarify the expectations of the course or an assignment. You will need to be prepared for each class. Evidence of lack of preparation is reason to be asked to leave the lecture (See Expectations).

The course is taken concurrently with a Laboratory component, 38-307. The laboratory experiences allow you to observe the concepts discussed in the course; develop the psychomotor skills necessary for practical applications; work collaboratively in groups; and develop skills in scientific method including written communication. Students are expected to develop practical skills in the laboratory consistent with current standards of practice, learn to administer exercise tolerance tests, interpret and present exercise test data, and develop simple assessment protocols for evaluating functional capacity.

Prerequisites:
All freshman and sophomore courses as outlined in the Exercise Physiology Curriculum.
Course Goal:
The student will describe the integrated and coordinated function of cardiovascular, pulmonary, neuromuscular and bioenergetic components of acute response and chronic adaptation to any physical activity; explain the impact of a variety of environmental stressors and/or biological impairments; and explain how exercise can modify risk as well as improve functional capacity.

Expectations (Related to Professional Behavior):
Students are expected:

- Attendance is mandatory. Students must notify faculty regarding absence prior to the start of the class in order for an absence to be an excused absence. Students should immediately notify the instructor about conflict between their religious observance and course due dates/examinations. (http://www.uml.edu/catalog/undergraduate/policies/attendance_policies.htm). In the event of an unavoidable absence, you are responsible for contacting a peer in the class to obtain any information or assignments you missed.
- To be on time for all lectures. (If you are more than 5 minutes late on three occasions, any subsequent occasions WILL RESULT in a final course grade reduction of 2 points.)
- To come to class prepared for lecture/discussion. (Not being prepared for class will result in you being asked to leave with that class being counted as an absence and a grade reduction of 2 points.)
- To respect privacy in all communications (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).
- To perform assigned tasks thoroughly and on time. (Assignments will NOT be accepted late and the student will suffer the grade consequences of a zero for said assignment.)
- To demonstrate knowledge of and adhere to departmental/institutional policies (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).
- To practice in a safe manner that minimizes risk to self and others (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).
- To present yourself in a professional manner (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).
- To demonstrate professional behavior during interactions with others (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).
- To communicate effectively in ways that are congruent with situational needs including appropriate body language, written communication, active listening skills and questioning (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).
- To implement a self-directed plan for professional development and lifelong learning; this includes self-assessment, self correction and self direction (First offense = Verbal Warning; Second offense: Written Incident Report to Student, Coordinator, Chair, Students Departmental Folder; Third offense: depends on actions outlined in the Written Incident Report which will likely include grade reduction of up to 10%).

*NOTE: A first offense is universal to all items, and an offense for any other item would then be a second offense. For example: if a verbal warning is provided for not implementing a self directed plan for professional development and lifelong learning; and a week later the Professor identifies an instance whereby the student is...
not demonstrating professional behavior during interactions with others, a Written Incident Report will be enacted that outlines all breaches, including the Verbal Warning.

**General Policies (Lecture and Lab)**

The instructor reserves the right to increase or decrease your final grade by up to 10% for behaviors outlined by the Faculty as required for professional success (see Exercise Physiology Student Manual, section on Generic Abilities) (See Expectations). You are reminded that counting this course towards graduation with Exercise Physiology as your declared major necessitates achieving an overall grade of 2.0 or better. A grade in this course below 2.0 (C) is not acceptable.

**Religious Holiday:** Students who are observing a religious holiday are excused from class that day but will be responsible for the work missed. Students must speak with the professor before the scheduled class.

**Make-up Examinations:** Make-up examinations will be given only in specific cases of excused absence (illness, death in the family, or religious holiday). Circumstances that may warrant an absence should be discussed with the instructor before (when possible) the scheduled time of the exam. Failure to notify the instructor as stated may result in a zero for the exam.

**Dishonesty and Cheating Statement:** All students are advised that there is a university policy regarding dishonesty and cheating, and a department Honor Code. It is the students' responsibility to familiarize themselves with these policies and to adhere to the Honor Code. If necessary, contact your advisor for clarification of these policies or refer to this link: [http://www.uml.edu/Catalog/Undergraduate/Policies/Academic-Integrity.aspx](http://www.uml.edu/Catalog/Undergraduate/Policies/Academic-Integrity.aspx)

**Special Accommodations:** If a student needs special accommodations under the Americans with Disabilities Act in order to achieve course objectives and/or requirements, it is the student's responsibility to contact the faculty advisor and provide documentation from the Office of Disability Services (240 O'Leary Library Building, UMass Lowell South, Ph. 978-934-4574) within two weeks of receiving this syllabus. [http://www.uml.edu/STUDENT-SERVICES/disability/](http://www.uml.edu/STUDENT-SERVICES/disability/)

**Services for Learning:** For detailed information contact: Division of Student Affairs, Cumnock Hall, UML North. Ph 978-934-2100 [http://www.uml.edu/STUDENT-SERVICES/](http://www.uml.edu/STUDENT-SERVICES/)

**Social Media and Technology use in the Classroom:** Students must follow the policies on social media. Please visit the SHE Student Policies page: [http://www.uml.edu/Health-Sciences/Current-Students/Student-Policies.aspx](http://www.uml.edu/Health-Sciences/Current-Students/Student-Policies.aspx). All cell phones/pagers must be turned off during class time. Personal phone calls, email or texting is not permitted during class or exams. Laptops may be used for class work only. Students engaging in any activities other than class work will be asked to leave class.

**Other Areas of Interest:**

“Federal regulation defines a credit hour as an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutional established equivalence that reasonably approximates not less than:

1. One hour of classroom or direct faculty instruction and a minimum of two hours out of class student work each week for approximately 15 weeks for one semester or trimester hour of credit, or the equivalent amount of work over a different amount of time; or

2. At least an equivalent amount of work as required in paragraph (1) for other activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours”
Laboratory Skill Objectives

Upon completion of this laboratory, students are expected to:

1. Set-up, and understand the operation of all pulmonary, metabolic, EKG, and exercise testing & training equipment
2. Administer and interpret a comprehensive pre-exercise health screening questionnaire, and understand the importance of obtaining medical clearance and informed consent
3. Demonstrate competency in the preparation and administration of pulmonary function tests and interpret the results based on individual health history and goals
4. Demonstrate competency in the preparation and administration of sub maximal and maximal cardio respiratory fitness tests and interpret the results in relation to individual health history and goals
5. Prepare, administer, and interpret electrocardiographic (ECG) assessments at rest and during exercise
6. Recognize and understand the normal ECG configuration and the significance of common ECG abnormalities
7. Demonstrate proficiency in obtaining accurate heart rate and blood pressure measurements at rest and during exercise using manual techniques and basic laboratory equipment
8. Understand and practice Universal Safety Precautions. Be familiar with all safety precautions and emergency procedures related to exercise testing in the laboratory.
9. Apply results from exercise tests for the development of appropriate population-specific exercise programs
10. Estimate maximal aerobic capacity using standard metabolic prediction equations for treadmill walking and running, bicycle ergometer, and stepping.
11. Design and competently monitor exercise training sessions for apparently healthy individuals using a variety of aerobic exercise equipment (e.g. stationary bikes, treadmills, stair climbers, rowers, etc.)
12. Have a thorough knowledge and understanding of the principles and practice of exercise testing and prescription in accordance with ACSM standards presented in Guidelines for Exercise Testing and Preparation
13. Interpret information from case studies from clinical and non-clinical populations and develop appropriate exercise programs to improve cardio respiratory fitness for disease prevention/intervention, health promotion, and athletic training

Regarding Laboratories: Students are required to:

1. Attend all laboratory classes for the assigned times. (Each missed laboratory results in a final grade reduction of 3 points.) Pass in all assignments on time. Late assignments will be reduced by 20% for the first day, 40% the second day, and will not be accepted 3 or more days late. To avoid “technical” or “other” difficulties in complying with this requirement, it is recommended that you complete assignments earlier than the day they are due.
2. Prepare Introduction and Methods portions of lab report PRIOR to data collection for that lab. This “pre-lab” report can be prepared as an outline or in full paragraph form and must be turned in the DAY of data collection.
3. Carefully follow directions for appropriate and safe use of all laboratory equipment and perform assigned tasks as requested by the faculty, teaching assistants, and laboratory staff.
4. Maintain an acceptable appearance and professional approach, including standards of conduct, to all laboratory work at all times.
5. Actively participate as subjects in exercise testing and training activities and wear appropriate attire.
6. Maintain the laboratory space and equipment in a safe, clean, and tidy condition. All equipment used must be cleaned and returned by students to the appropriate storage location after use.
7. Utilize supporting academic resources and references to supplement formal lecture and laboratory work.
8. Treat all volunteer subjects/partners with respect and consideration during laboratory assessments.
9. Use tact, diplomacy, and common courtesy in all communications and personal interactions in the laboratory.
10. Demonstrate initiative as the need arises and willingness to accept responsibility when requested.
11. Ask appropriate questions of the instructor and seek opportunities to gain further knowledge and understanding through required, recommended, and independent reading.
12. Develop skills in problem solving, leadership, and interpersonal relations during assigned group work.

General Information

Lab

Time Allotment
Contact Hours: 3
Credit Hours: 1

Evaluation Methods
Checklist: 50%
Lab Reports (4): 50%

Required Textbook(s)

Supplemental Texts
Intro to Statistics, College Writing I textbooks, any texts to support whichever spreadsheet/graphics and/or statistical package you use (Excel, SPSS, Systat, SigmaPlot, SAS, etc)

Grading Policy
A 93-100
A- 90-92.99
B+ 87-89.99
B 83-86.99
B- 80-82.99
C+ 77-79.99
C 73-76.99
C- 70-72.99
D+ 67-69.99
D 63-66.99
D- 60 – 62.99
F <60
<table>
<thead>
<tr>
<th>Dates</th>
<th>Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1 – 9/1</td>
<td>No Labs</td>
</tr>
<tr>
<td>#2 - 9/8</td>
<td>Syllabus Review, Introduction to Lab/Reports, Checklist</td>
</tr>
<tr>
<td></td>
<td>Basic Data: Med Hx, Consent, Orthostatic Hypotension, Anthropometric Data</td>
</tr>
<tr>
<td></td>
<td>– see lab report 1</td>
</tr>
<tr>
<td></td>
<td>Adams - Chapters 1 – 3 &amp; 16, 23</td>
</tr>
<tr>
<td></td>
<td>ACSM - Chapters 2-3 &amp; pg 62-64</td>
</tr>
<tr>
<td></td>
<td>Collect first part of data set for LR#1</td>
</tr>
<tr>
<td>#3 – 9/15</td>
<td>Anaerobic Testing (Wingate and Step) and Aerobic Testing (Forestry Step Test)</td>
</tr>
<tr>
<td></td>
<td>Adams - Chapters 9-10, 13</td>
</tr>
<tr>
<td></td>
<td>Collect second part of data set for LR#1 (Forestry Step Test)</td>
</tr>
<tr>
<td></td>
<td><strong>Lab Report 1 Introduction and Methods DUE</strong></td>
</tr>
<tr>
<td>#4 – 9/22</td>
<td>Finish data collection of Forestry Step Test as needed</td>
</tr>
<tr>
<td></td>
<td>Microsoft Excel Tutorial—Statistical Analysis of Lab 1 Data</td>
</tr>
<tr>
<td></td>
<td>Hand back Intro &amp; Methods &amp; Guidance on Results/Discussion Section for Lab 1</td>
</tr>
<tr>
<td>#5 – 9/29</td>
<td><strong>Lab Report 1 Due in Full</strong></td>
</tr>
<tr>
<td></td>
<td>Submaximal Exercise Tests to predict VO2max (Astrand Cycle)</td>
</tr>
<tr>
<td></td>
<td>Exercise Blood Pressure</td>
</tr>
<tr>
<td></td>
<td>Adams – Chapters 14, 17</td>
</tr>
<tr>
<td></td>
<td>Powers – Chapter 15</td>
</tr>
<tr>
<td>#6 – 10/6</td>
<td>Resting and Exercise Ventilation, Pulmonary Function Tests (PFTs)</td>
</tr>
<tr>
<td></td>
<td>Adams – Chapters 20-21</td>
</tr>
<tr>
<td>#7 – 10/13</td>
<td>Indirect Calorimetry &amp; Substrate Utilization – Steady State</td>
</tr>
<tr>
<td></td>
<td>Adams – Chapter 19-21</td>
</tr>
<tr>
<td></td>
<td>Powers – Chapter 15</td>
</tr>
<tr>
<td></td>
<td><strong>Lab Report 2 Due in Full</strong></td>
</tr>
<tr>
<td>#8 – 10/20</td>
<td>Resting and Exercise EKG</td>
</tr>
<tr>
<td></td>
<td>Adams Chapters 18-19</td>
</tr>
<tr>
<td>#9 – 10/27</td>
<td>Maximal Exercise Tests (Modified Bruce and Balke-Ware)</td>
</tr>
<tr>
<td></td>
<td>Powers – Chapter 20</td>
</tr>
<tr>
<td></td>
<td>Adams – Chapter 15</td>
</tr>
<tr>
<td></td>
<td><strong>Lab Report 3 Due in Full</strong></td>
</tr>
<tr>
<td>#10 – 11/3</td>
<td>Submaximal &amp; Maximal Exercise Testing &amp; Exercise Prescription (Powers Ch 16)</td>
</tr>
<tr>
<td>#11 – 11/10</td>
<td>Skinfolds, Circumferences, BEI</td>
</tr>
<tr>
<td></td>
<td>Adams – Chapter 24-25, pages 62-72</td>
</tr>
<tr>
<td></td>
<td><strong>Lab Report 4 Due in Full</strong></td>
</tr>
<tr>
<td>#12 – 11/17</td>
<td>NO LABS - OPEN LABS FOR CHECKLIST</td>
</tr>
<tr>
<td>#13 – 11/24</td>
<td>NO LABS - THANKSGIVING WEEK</td>
</tr>
<tr>
<td>#14 – 12/1</td>
<td>NO LABS - OPEN LABS FOR CHECKLIST</td>
</tr>
<tr>
<td>#15 – 12/8</td>
<td>NO LABS</td>
</tr>
</tbody>
</table>
Laboratory Reports

Overall Instructions
1. Lab reports are intended to help student integrate the lecture and laboratory material, encourage reference to the appropriate background material (scientific literature), identify goals and objectives of data collection, communicate methods, and to develop skills in analyzing, summarizing, integrating and communicating data.
2. Lab reports should be a maximum of 8 typewritten pages in total using a scientific format. An appropriate computer word processor application must be used. Type should be no less than 10-point font and single-spaced. Margins should not be less than one inch.
3. Data collected for laboratory reports should be summarized in both table and graphical form. An appropriate computer program, such as Excel, SPSS or equivalent software program should be used. Technical assistance with these programs is available from staff in the student multimedia center located on the 3rd floor of O’Leary Library.
4. Completed reports must be turned in two weeks after each lab requiring a report.
5. Each Lab Reports is worth up to 12.5 points toward the final laboratory grade and should be organized with headings for each section clearly delineated as below:

Introduction – 2 points – (approximately 1 page)
This section includes concise statements of the purpose of the lab experiment (i.e. WHAT and WHY this is being done needs to be answered here). When discussing the scientific and/or clinical purpose you should include appropriate and logically organized background information to “introduce” the following sections of methods, results and discussion. The introduction should follow with a summary statement of the expectations of this experiment, i.e. hypotheses.

Methods – 2 Points – (approximately 1 page)
WHAT data is being collected for the aforementioned purpose and HOW is this data being collected and analyzed is being answered in the methods section. This section will include a description of the independent and dependent variables and how data will be analyzed. Independent variables will include exercise test protocol, mode, absolute intensity, duration, etc. Dependent variables will include measurements of response (ventilation, heart rate, blood pressure, symptoms, etc). How the data will be analyzed includes a brief summary of the approach – descriptive analysis (means, standard deviations, range, mode, medians), graphical analysis (line graphs, scatterplots), correlation (Pearson correlation, partial correlation, simple linear regression) comparison of means (t test or ANOVA).

Results - 3 points – (approximately 2 pages)
Present in a clear, concise, logical manner the results obtained during the laboratory activity. The presentation will vary slightly based on what data was collected. At times results will be presented with collected lab data being all inclusive; and at other times collected data will be compared to expected data (from population sample statistics – i.e. compare results of a test with age, gender normative data).

Discussion – 4.5 points - (approximately 2 pages)
Interpret the results based on the purpose of collecting the data in the first place (from the introduction). Be clear, concise, and logical. The interpretation should address, in the scientific case, an interpretation of any statistical analysis conducted and possible random as well as systematic error and how this latter form of error may bias the results. In the clinical case, you should interpret the results based on how the subject(s) compare with normal values, and possible error that influence this interpretation.

References – 1.0 points (approximately .5 page)
Use an acceptable style of citation and format your references accordingly (AMA, APA, MLA, etc.).

12/10/2014
Lab Report Tips

1. Take notes during lab recitation about purpose, method, data collected, etc.
2. Ask questions in lab to make sure you understand what you are doing, what is being collected, why it is being collected, etc.
3. Start working on the lab report the night following the lab experience. Start with an outline that includes all major sections and build from that outline. The process of writing the report is iterative and you will need to jump between sections so make sure you have an outline that anchors everything in an organized manner.
4. Avoid grammatical and spelling errors.
5. Avoid handwritten graphs, figures, keys, etc.
6. Avoid redundancy and flaws in logic.
7. Make sure any raw data manipulations are explained (computations of new variables, making variables relative to something, etc.).
8. Tables and Figures should be referred to numerically in order of reference (i.e. Table 1, Figure 1, etc)
9. Tables should be clearly labeled and present 2 decimal point accuracy when available.
10. Figures should be clear, appropriately labeled and scaled, and include appropriate components as discussed in lab (line of best fit, error bars, variables, etc.)
11. In the discussion be sure to demonstrate your knowledge and understanding of the data and how it integrates with what you are learning in class.
12. Be logical, structured, error free, succinct and to the point.

Turnitin

All lab reports must be submitted in paper to the lab instructor as well as online on Turnitin.com. Failure to submit your lab report to Turnitin.com on the due date, regardless if a hard copy is received by the lab instructor will result in an automatic failure for that lab report.

The login information for Turnitin:
Class ID: 8317742
Password: eplab2014

Please refer to this link for technical support: http://www.turnitin.com/en_us/training/student-training/student-quickstart-guide
Specific Lab Reports

Lab Report 1 – Basic Data & Step Test

Purpose:
1. Perform medical history and health screening using PAR-Q
2. Measure and record basic anthropometric data of the laboratory section (your class)
3. Utilize safe and inexpensive modalities to investigate anaerobic capacity (Anaerobic Step Test and Wingate), and VO2max (aerobic capacity) via Forestry Step Test as a cardiorespiratory fitness indicator, and ways to predict in a variety of populations
4. Identify relationship between variables collected via graphs and statistical analysis

Database: collective data from your laboratory section
1. Every subject is given a number starting with section number (i.e. 801, 802, 803, etc) and then (01, 02, etc). Thus one subject’s number would be (801-01, 801-02).
   a. Each person should remember which subject number they are for subsequent lab reports and individual analysis.
2. Data collected: age, sex, height, weight, BMI, resting HR, resting BP (separate columns for SBP and DBP)
   a. Anaerobic test: number of steps, mean anaerobic power (MAP) in watts, relative MAP
   b. Aerobic test: number of steps, step-test recovery pulse (15 seconds after completion), non-adjusted VO2max, age adjusted VO2max

Statistics:
1. Table of data collected
2. Mean, median, mode standard deviation for each variable for the class
3. Graph: mean anaerobic power (MAP) for male and females in class
4. Graph: number of steps in anaerobic test versus BMI and calculate correlation coefficient (R value)
5. Graph: BMI versus subject’s VO2max
6. Graph: compare recovery heart rate for males and females
7. Graph: resting HR versus recovery HR for aerobic step test

Results/Discussion (please refer to general categories for more information to include):
1. Present the class’s anthropometric data in chart format
2. Discuss the relationships noted during statistical analysis and whether it was expected/unexpected.
3. Compare your individual data of means, medians, and modes of data above to age-related norms/categories where applicable
4. Discuss why age must be factored in non-adjusted VO2max values from Forestry Step Test
5. How could the presence of significant past medical history (diabetes, etc) impact results?
6. Discuss validity and errors of tests performed.
7. Further discussion as determined appropriate by lab student and general laboratory report instructions
Purpose:
1. Utilize safe, inexpensive and low-risk modalities to predict (NOTE: NOT measure) maximal oxygen consumption in a variety of populations, particularly those in whom maximal exercise testing may be contraindicated.
   a. Astrand Cycle
2. Develop skills to measure exercise blood pressure during exercise testing, understand impact of exercise and other factors on blood pressure, and determine whether exercise is appropriate
3. Discover the concept of rate-pressure product and how it can utilized to determine workload of the heart and assess myocardial perfusion in clinical settings.

Database:

Exercise Blood Pressure:
1. 2-3 volunteers from your lab section
2. Collect: age, sex, BMI, resting HR, exercise HR at last 30-60 seconds of exercise stage (5) of cycle protocol, resting BP (SBP and DBP in separate columns), Exercise SBP and DBP for last 30-60 seconds of each exercise stage (5) of cycle protocol, power (watts) for each of 5 stages
3. Calculate: rate-pressure product (RPP) at end of each stage (5) of cycle test

Results/Statistics:
1. Table of data collected for both exercise BP and Astrand cycle test.
2. Graph: blood pressure (SBP and DBP) on y-axis versus power level (x-axis) for male and female (2 total charts - one chart with have SBP for male and female versus power and same for DBP)
3. Graph: power level (x-axis) and RPP on y-axis (male and female on one graph)

Discussion:
1. Discuss results obtained from statistical analysis.
2. Discuss any differences in male versus female results.
3. Discuss the rationale for utilizing submaximal tests to predict VO2max. Discuss results from Astrand cycle test.
4. Discuss the factors that may influence BP during an exercise test and with recovery, including gender.
5. Discuss RPP as means to monitor exercise intensity or assess myocardial perfusion and precautions to take when utilizing this method.
6. Discuss validity and errors of tests performed.
7. Further discussion as determined appropriate by lab student and general laboratory report instructions
Purpose
1. Define and comprehend the concept of indirect calorimetry to estimate caloric expenditure and which fuels are being consumed during submaximal, steady state exercise.
2. Utilize metabolic cart to gather data and information to investigate the crossover effect seen with exercise.

Database:
1. 2 volunteers from your lab section - 1 bike and 1 treadmill subject
2. Create 4 tables – 2 for bike (Stage 1 and Stage 2), 2 for TM (Stage 1 and Stage 2)
3. Collect for both TM and bike: age, height, weight, time recorded (1st minute and 6th minute), HR, RPE, $V_e$ (L/min), $FeO_2$, $FeCO_2$, $FeN_2$, VO$_2$, VCO$_2$
4. Calculate: Respiratory Exchange Ratio (RER) and caloric equivalents (using tables in handout).
5. Table 5 – Calculated RER with % energy from fat, % energy from card, Energy (kcals/min), Energy (kJ/min), Grams of fat, Grams of carbs

Results/Statistics:
1. Column Graph: Workload 1 & 2 (x-axis), Percentage of Substrate Utilization Carbs/Fat (y-axis)
   a. Bike and TM
   b. Maintain color scheme across both column graphs
2. Comment on changes in $FeO_2$, $FeCO_2$, $FeN_2$, and RER throughout the exercise protocols for treadmill and cycle. Indicate what the changes mean in terms of substrate utilization.
3. Identify crossover concept and whether it was significantly present.
4. Discuss validity and errors of tests performed.
5. Further discussion as determined appropriate by lab student and general laboratory report instructions
Purpose:
1. To use graded exercise protocols (Balke Ware and/or Modified Bruce) and indirect calorimetry to *measure* maximal oxygen consumption and to compare this direct method with previously performed indirect, submaximal methods of estimating VO2max.

Database
1. 1-2 subjects from your lab group, depending on how much time it takes per test.
2. Attempt for male and female subjects.

Results:
1. Graph: Time (x-axis) and VO2 (L/min) on y-axis (Subject 1 and 2)
2. Graph: Time (x-axis) and Ventilation (L/min) on y-axis (Subject 1 and 2)
3. Include lines to show thresholds
4. Table comparing sub-maximal and maximal test results
<table>
<thead>
<tr>
<th>Skill</th>
<th>Instructor Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measure Resting HR</td>
<td></td>
</tr>
<tr>
<td>Measure Resting BP</td>
<td></td>
</tr>
<tr>
<td>Measure Exercise HR (Bike)</td>
<td></td>
</tr>
<tr>
<td>Measure Exercise HR (Treadmill)</td>
<td></td>
</tr>
<tr>
<td>Measure Exercise BP (Bike)</td>
<td></td>
</tr>
<tr>
<td>Measure Exercise BP (Treadmill)</td>
<td></td>
</tr>
<tr>
<td>Prep and Hook up Subject for Electrocardiogram</td>
<td></td>
</tr>
<tr>
<td>Basic ECG Interpretation (Rate, Rhythm)</td>
<td></td>
</tr>
<tr>
<td>Obtain Resting Pulmonary Function Tests</td>
<td></td>
</tr>
<tr>
<td>Interpret PFT’s (FVC, FEV1, MVV)</td>
<td></td>
</tr>
<tr>
<td>Prepare &amp; Perform Exercise Test</td>
<td></td>
</tr>
<tr>
<td>☐ Acquire Informed Consent</td>
<td></td>
</tr>
<tr>
<td>☐ Acquire Medical History Screening</td>
<td></td>
</tr>
<tr>
<td>☐ Explain rationale</td>
<td></td>
</tr>
<tr>
<td>☐ Explain process</td>
<td></td>
</tr>
<tr>
<td>Provide and explain exercise prescription based on exercise test</td>
<td></td>
</tr>
</tbody>
</table>

*The student is responsible for keeping this form throughout the semester and obtaining checks from the instructor with initials and dates.*

Final Instructor Sign Off: ______________________________ Date:_________
I. **Title:** Kinesiology Lecture 38.315. Fall 2014
   
   Lecture Mon, Wed, Fri  Section 101  12:00 - 12:50  
   Lecture Mon, Wed, Fri  Section 102  2:00 - 2:50

II. **Course Description:**
   In Kinesiology the study of Newtonian Mechanics, Anatomy, Neuromuscular Physiology and Motor Control is combined to teach the analysis of human movement. The major focus of the course is the qualitative analysis of human movement and its wide range of practical applications. Topics also include quantitative analysis techniques, body mechanics, posture and gait evaluation with a focus of identifying and interpreting causes of less than optimal movement patterns as well as injuries. Students are given the freedom to explore areas of their interest within the goals and objectives of the course, however with this freedom comes a greater responsibility for the critical thinking and learning required to be successful in the analysis of human movement.

III. **Course Objectives:**

   The student will be able to:
   1. Determine the planes, axis and degrees of freedom of joints during movements.
   2. Demonstrate an understanding of mechanical principles in evaluating the musculoskeletal system, movement and gait patterns.
   3. Describe osteokinematic and arthrokinematic movements of diarthrodial joints.
   4. Identify the muscles and their roles in a movement pattern.
   5. Assess the muscles contraction type and efficiency in a movement.
   6. Perform a qualitative evaluation of movement for the purpose of performance improvement, training improvement and injury prevention.
   7. Discuss the necessary components of performing a quantitative analysis of movement.
   8. Discuss common injuries and the possible mechanism or force that caused the injury.
   9. Differentiate and discuss components and causes of optimal and less than optimal movement. Understand variations that occur in normal movement patterns as well as possible etiologies of these variations and consequences of these variations.
   10. Evaluate posture and body mechanics and its effect on normal gait and muscular coordination.
   11. Identify anatomical and physiological aspects that contribute to normal gait patterns.
   12. Interpret and evaluate professional literature in Kinesiology.

   **The Student:**
   1. Attends class, is punctual, follows directions, and completes assigned tasks thoroughly and on time.
   2. Demonstrates knowledge of and adheres to departmental/institutional policies.
   3. Demonstrates professional behavior during interactions with others.
   4. Communicates effectively in ways that are congruent with situational needs including appropriate body language, written communication, active listening skills and questioning.
   5. Implements a self-directed plan for professional development and lifelong learning which includes self-assessment, self correction and self direction.

   **Adapted from the Physical Therapy Program, University of Wisconsin-Madison, May et al. Journal of Physical Therapy Education. 0:1, Spring 1995.**
**Student Responsibilities:**
All students are expected to attend class and be punctual. It is expected that all students will demonstrate professional behavior toward the instructor and fellow students. Students are expected to adhere to departmental/institutional policies. If a student is disrespectful or disruptive the student will be asked by the instructor to leave. This may result in a reduction of final grade and the student is not to return to the class until meeting with the instructor and academic advisor.
The professor reserves the right to decrease the final grade by up to 10% for behaviors outlined by the Faculty as required for professional success (see Student Manual, Professional Behaviors /Generic Abilities/Technical Standards).

**IV. General Information:**

<table>
<thead>
<tr>
<th>Section</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Time Allotment</td>
<td>Lecture: 3 hours of lecture per week Credit hours: 3</td>
</tr>
<tr>
<td>B. Placement</td>
<td>Fall semester – Junior year Exercise Physiology Program</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>Anatomy and Physiology I &amp; II with Lab; Gen. Physics I &amp; II with Lab; Intro to EP; and junior year status</td>
</tr>
<tr>
<td>Co-requisites</td>
<td>Kinesiology Lab 38.317</td>
</tr>
<tr>
<td>C. Teaching Methods</td>
<td>Lectures, demonstrations, discussions, audiovisual materials, readings, quizzes, problem solving case studies, written assignments, and examinations.</td>
</tr>
<tr>
<td></td>
<td>BlackBoard Learn link for obtaining class lecture outlines, assignments and other handouts: <a href="https://uml.umassonline.net/">https://uml.umassonline.net/</a></td>
</tr>
<tr>
<td>D. Attendance</td>
<td>Attendance at all class meetings is mandatory. Students must notify faculty regarding absence prior to the start of the class in order for an absence to be an excused absence. Unexcused absences will result in a reduction of final grade. Students should immediately notify the instructor about conflict between their religious observance and course due dates/examinations. Students missing class for religious holidays or excused absences will be responsible for the work missed. For more information on the attendance policy see the website below. <a href="http://www.uml.edu/Catalog/Undergraduate/Policies/Attendance-Policies.aspx">http://www.uml.edu/Catalog/Undergraduate/Policies/Attendance-Policies.aspx</a></td>
</tr>
<tr>
<td>E. Evaluation Methods</td>
<td>Homework &amp; other assignments 15 points Exam 1 25 points Exam 2 25 points Final Exam 35 points</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong> 100 points</td>
</tr>
</tbody>
</table>

Students must demonstrate their preparation for class by participating in class activities, discussions, and answering questions – either by volunteering or when called upon. Failure to participate in class may result in a 5% reduction of overall class grade. Late assignments will
result in a grade reduction of 5% for each day that it is late. Assignments will not be accepted more than one week beyond the due date.

**Examination Policies:** Student cell phones must be turned off and kept in their belongings not on their person. Communication of any sort with any source is not permitted and will result in a grade of zero for the exam. Failure to abide by examination policies may result in a grade reduction and/or zero for the exam at the discretion of the instructor.

Make-up examinations will be given only in specific cases of excused absence with written documentation and will be evaluated on a case by case basis (illness, death in the family, or religious holiday). Circumstances that may warrant an absence should be discussed with the instructor before the scheduled time of the exam. Failure to notify the instructor as stated may result in a zero for the exam.

**F. Grading Policy:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93 ≤ A ≤ 100</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>90 ≤ A- &lt; 93</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>87 ≤ B+ &lt; 90</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>83 ≤ B &lt; 87</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>80 ≤ B- &lt; 83</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>77 ≤ C+ &lt; 80</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>73 ≤ C &lt; 77</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>70 ≤ C- &lt; 73</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>67 ≤ D+ &lt; 70</td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>63 ≤ D &lt; 67</td>
<td>1.0</td>
</tr>
<tr>
<td>D-</td>
<td>60 ≤ D- &lt; 63</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Students are reminded that continuation in the program necessitates achieving an overall, science and EP course grade point average of 2.5 or better.

**G. Faculty:**

Erika Lewis, PT, Ed.D, MS, CHT
Associate Professor, Department of Physical Therapy
O’Leary Library, Room 540L
(978) 934-4405
Email: Erika_Lewis@uml.edu
Office Hours: Monday, Wednesday and Friday 1:00 – 2:00

**H. Use of Technology in the Classroom:** All cell phones/pagers and other electronic devices must be turned off or muted during class time. Personal phone calls, email or texting is not permitted during class. Laptops may be used for class work only. Students engaging in any activities other than class work will be asked to leave class. During exams there will be no cell phones or other electronic devices allowed.
I. College of Health Sciences Social Media Policy
The College of Health Sciences recognizes that all involved in health care have a moral, ethical and legal responsibility to maintain individual’s rights to privacy. HIPAA protects patient privacy by law and includes any individually identifiable patient information in oral or recorded form where the information could identify an individual by name, medical condition, demographic data or other means. Students in the College of Health Sciences are expected to act with honesty, integrity and respect the privacy rights of others. All students in the College of Health Sciences are expected to meet their professional responsibilities when using social media and other electronic networks including but not limited to blogs, instant messaging, social networking sites, email, public media sites and photographs. This policy prohibits posting written material or photographs that identify patients, health care agencies, educational institutions or other students in clinical sites or patient related activities. This policy applies whether using University devices and computers or personal equipment. In addition, all College of Health Sciences students are required to abide by clinical agency policies related to the use of social media and technological resources. Failure to adhere to this policy may result in probation, suspension or dismissal from the College of Health Sciences and/or legal prosecution under the requirements of HIPAA. For more information on the Social Media Policy go to the webpage below:
http://www.uml.edu/health-sciences/Current-Students/Student-Policies.aspx

J. Note: The professor reserves the right to modify the syllabus if the need arises during the course—in the unusual circumstance that a change is warranted, students will be notified in writing as soon as the change is implemented.

V. Course Requirements:
A. Successful completion of all exams, quizzes and written assignments.
B. Completion of assigned readings prior to class lecture/discussion.
C. Class attendance and participation.

VI. Required Text:


Suggested Readings:

VII. Academic Integrity:
All students are advised there is a University policy regarding dishonesty and cheating, and a department Honor Code. It is the students' responsibility to familiarize themselves with these policies and to adhere to the Honor Code. University policies will be strictly enforced. If necessary, contact the instructor or your advisor for clarification of these policies. For more information see the website on Academic Integrity listed below.

http://www.uml.edu/Catalog/Undergraduate/Policies/Academic-Integrity.aspx

Academic dishonesty includes but is not limited to:

Cheating - use, or attempted use, of trickery, artifice, deception, breach of confidence, fraud, or misrepresentation of one's academic work. Submission of the same work in its entirety for credit in two courses without obtaining the permission of the instructors constitutes cheating. Collaborating with others when not explicitly allowed by the instructor constitutes cheating.

Fabrication - falsification or invention of any information or citation in any academic exercise.

Plagiarism - representing, whether intentionally or unintentionally, the words or ideas of another as one's own work in any academic exercise.

Facilitating dishonesty - helping or attempting to help another commit an act of academic dishonesty, including substituting for another in an examination, misrepresenting oneself, or allowing others to represent as their own one's papers, reports, or academic works.

VIII. Disability Services:
If a student needs special accommodations under the Americans with Disabilities Act in order to achieve course objectives and/or requirements, it is the student's responsibility to notify the instructor and provide documentation from the Office of Disability Services within two weeks of receiving this syllabus. For detailed information contact: Office of the Student Disability Services, 240 O'Leary Library Building, UMass Lowell South, Ph. 978-934-4574.

http://www.uml.edu/STUDENT-SERVICES/disability/

IX. Services for Learning:
For detailed information contact: Division of Student Affairs, Cumnok Hall, UML North. Ph 978-934-2100

http://www.uml.edu/STUDENT-SERVICES/

X. Credit Hour Policy
Federal definition of a credit hour requires that for every course credit awarded, a course must offer 15 hours of instructor led course activities and 30 hours of out-of-class student work.
# 2014 Schedule: Kinesiology  38.315.101 & 102

**Dr. Erika Lewis**

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Lecture</th>
<th>Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sept 1</td>
<td>Sept 2</td>
<td>Sept 3</td>
<td>Sept 4</td>
<td>Sept 5</td>
<td>Lecture</td>
<td>Intro, Terms, Axes, Planes, Bones, Jt. Types, Musc sys. Translatory motion, Arthrokinematics</td>
</tr>
<tr>
<td>Sept 8</td>
<td>Sept 9</td>
<td>Sept 10</td>
<td>Sept 11</td>
<td>Sept 12</td>
<td>Lecture</td>
<td>Muscular Conc/Ecc Contraction Types Length-tension, A/P insuff Muscle spindle, neuro</td>
</tr>
<tr>
<td>Lecture</td>
<td>Lab 1</td>
<td>Lab 1</td>
<td>Lab 1</td>
<td>Lab 1</td>
<td>Lab 1</td>
<td>Lab 1</td>
</tr>
<tr>
<td>Lab 2</td>
<td>Lab 2</td>
<td>Lab 2</td>
<td>Lab 2</td>
<td>Lab 2</td>
<td>Lab 2</td>
<td>Lab 2</td>
</tr>
<tr>
<td>Sept 15</td>
<td>Sept 16</td>
<td>Sept 17</td>
<td>Sept 18</td>
<td>Sept 19</td>
<td>Online</td>
<td>Shoulder Girdle, Force Couples, Levers, types of motion, angle of pull</td>
</tr>
<tr>
<td>Lecture</td>
<td>Lab 2</td>
<td>Lab 2</td>
<td>Lab 2</td>
<td>Lab 2</td>
<td>Lab 2</td>
<td>Lab 2</td>
</tr>
<tr>
<td>Lab 3</td>
<td>Lab 3</td>
<td>Lab 3</td>
<td>Lab 3</td>
<td>Lab 3</td>
<td>Lab 3</td>
<td>Lab 3</td>
</tr>
<tr>
<td>Sept 22</td>
<td>Sept 23</td>
<td>Sept 24</td>
<td>Sept 25</td>
<td>Sept 26</td>
<td>Lecture</td>
<td>Elbow and Forearm</td>
</tr>
<tr>
<td>Lecture</td>
<td>Lab 3</td>
<td>Lab 3</td>
<td>Lab 3</td>
<td>Lab 3</td>
<td>Lab 3</td>
<td>Lab 3</td>
</tr>
<tr>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
</tr>
<tr>
<td>Sept 29</td>
<td>Sept 30</td>
<td>Oct 1</td>
<td>Oct 2</td>
<td>Oct 3</td>
<td>Lecture</td>
<td>Wrist and Hand</td>
</tr>
<tr>
<td>Lecture</td>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
</tr>
<tr>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
<td>Lab 4</td>
</tr>
<tr>
<td>Date</td>
<td>Lecture</td>
<td>Lab Practical</td>
<td>Lecture</td>
<td>Lab Practical</td>
<td>Lecture</td>
<td>Lab Practical</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
<td>---------------</td>
<td>---------</td>
<td>---------------</td>
<td>---------</td>
<td>---------------</td>
</tr>
<tr>
<td>Columbus Day</td>
<td></td>
<td>Lecture</td>
<td>Lab 5</td>
<td>Lab 5</td>
<td>Pelvis</td>
<td></td>
</tr>
<tr>
<td>Lecture</td>
<td>Oct 27</td>
<td>Oct 28</td>
<td>Oct 29</td>
<td>Oct 30</td>
<td>Hip</td>
<td></td>
</tr>
<tr>
<td>Lab 6</td>
<td>Lab 6</td>
<td>Lab 6</td>
<td>Lab 6</td>
<td>Lab 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov 3</td>
<td>Nov 4</td>
<td>Nov 5</td>
<td>Nov 6</td>
<td>Nov 7</td>
<td>Exam 2</td>
<td></td>
</tr>
<tr>
<td>Lecture</td>
<td>Nov 7</td>
<td>Lecture</td>
<td>Lab 7</td>
<td>Lecture</td>
<td>Hip</td>
<td></td>
</tr>
<tr>
<td>Lab 7</td>
<td>Lab 7</td>
<td>Lab 7</td>
<td>Lab 7</td>
<td>Lab 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Holiday/</td>
<td>Lecture</td>
<td>Lecture</td>
<td>Lecture</td>
<td>Lecture</td>
<td>Knee, Ankle/Foot</td>
<td></td>
</tr>
<tr>
<td>Veteran’s Day</td>
<td></td>
<td>Lab 18</td>
<td>Lab 19</td>
<td>Lab 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov 17</td>
<td>Nov 18</td>
<td>Nov 19</td>
<td>Nov 20</td>
<td>Nov 21</td>
<td>Knee, Ankle/Foot</td>
<td></td>
</tr>
<tr>
<td>Lecture</td>
<td>Lab 18</td>
<td>Lab 19</td>
<td>Lab 20</td>
<td>Lab 21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab Practical 2</td>
<td></td>
<td>Lab Practical 2</td>
<td>Lab Practical 2</td>
<td>Lab Practical 2</td>
<td>Ankle/Foot</td>
<td></td>
</tr>
<tr>
<td>Nov 24</td>
<td>Nov 25</td>
<td>Nov 26</td>
<td>Nov 27</td>
<td>Nov 28</td>
<td>Gait</td>
<td></td>
</tr>
<tr>
<td>Lecture</td>
<td>Nov 25</td>
<td>Thanksgiving</td>
<td>Nov 27</td>
<td>Holiday</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dec 2</td>
<td>Dec 3</td>
<td>Dec 4</td>
<td>Dec 5</td>
<td>Gait, Posture, Nervous system</td>
<td></td>
</tr>
<tr>
<td>Dec 2</td>
<td>Dec 3</td>
<td>Dec 4</td>
<td>Dec 5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

APPENDIX A
<table>
<thead>
<tr>
<th>Lecture</th>
<th>Lecture</th>
<th>Lecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dec 8</td>
<td>Dec 10</td>
<td>Dec 12</td>
</tr>
<tr>
<td>Lecture</td>
<td>Lecture</td>
<td>Lecture</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Nervous sys, contract relax techniques*  
*H&K: Ch. 4 pp. 121-125*

*H&K = Biomechanical Basis of Human Movement  **TG = Trail Guide to the Body*

Go to BlackBoard Learn for obtaining class lecture Powerpoint outlines, handouts, homework and other materials
[https://uml.umassonline.net/](https://uml.umassonline.net/)
I. Title:  Kinesiology Laboratory 38.317

Sections:
801  Monday  8:00 – 10:50 am
802  Tuesday  8:00 – 10:50 am
803  Wednesday  8:00 – 10:50 am
804  Thursday  8:00 – 10:50 am
805  Friday  8:00 – 10:50 am
806  Thursday  11:00 --  2:00 pm
807  Monday  3:00 – 5:00 pm

II. Course Description:
This course should be taken concurrently with 38.315.101 (or .102). This course is designed to practically apply topics discussed in kinesiology lecture. Students are given the opportunity to engage in various activities that will allow them to observe and analyze the numerous factors involved in human motion and the impact of those factors on human performance. Students are given the opportunity and encouraged to explore areas of personal interest within the goals and objective of the course.

III. Course Objectives:
Upon completion of this course the student will be ability to:
1. Identify the planes and axes by which various human movements occur.
2. Describe various human movements utilizing proper terminology.
3. Recognize the various forces acting on an object or body causing or inhibiting motion.
4. Identify the bones of the axial and appendicular skeletal system, joint structure and associated movement patterns.
5. Identify the muscles of the upper and lower extremities and their roles in various movement patterns.
6. Utilize both qualitative and quantitative methods of movement analysis.

The Student:
1. Respects subject privacy in all communications
2. Practices in a safe manner that minimizes risk to self and others
3. Presents self in a professional manner.

Student Responsibilities:
All students are expected to attend class and be punctual. It is expected that all students will demonstrate professional behavior toward the instructor and fellow students. Students are expected to adhere to departmental/ institutional policies. On any given day if a student is disrespectful or disruptive and is asked by the instructor to leave, the student is not to return to the class until meeting with the instructor and academic advisor.

IV. General Information:
A. Time Allotment: Lab: 3 hours of laboratory per week
Credit hours: 1
B. Placement:
Fall semester – Junior year Exercise Physiology Program
Prerequisites
Anatomy and Physiology I & II with Lab;
Gen. Physics I & II with Lab; Intro to EP; junior year status
Co-requisites  Kinesiology Lecture 38.315
C. Teaching Methods and Learning Experiences

Demonstrations, discussions, lectures, audiovisual materials, readings, problem solving case studies, written assignments, and practical examinations. BlackBoard Learn link for obtaining class laboratory outlines, assignments and other handouts: https://uml.umassonline.net/

D. Attendance

Attendance at all class meetings is mandatory. Students must notify faculty regarding absence prior to the start of the class in order for an absence to be an excused absence. Unexcused absences will result in a reduction of final grade. Students should immediately notify the instructor about conflict between their religious observance and course due dates/examinations. Students missing class for religious holidays or excused absences will be responsible for the work missed. For more information on the attendance policy see the website below. http://www.uml.edu/Catalog/Undergraduate/Policies/Attendance-Policies.aspx

E. Evaluation Methods

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Practical 1</td>
<td>30 pts</td>
</tr>
<tr>
<td>Lab Reports</td>
<td>30 pts</td>
</tr>
<tr>
<td>Lab Practical 2</td>
<td>40 pts</td>
</tr>
<tr>
<td></td>
<td>100 pts</td>
</tr>
</tbody>
</table>

1. A passing grade of "C" must be obtained on practical examinations in order to pass the course. In the event that a student fails a practical exam, she/he will be allowed to retake the exam once to bring the grade up to a "C" (73%).

2. Make-up examinations will be given only in specific cases of illness, death in the family, or religious holiday. Circumstances that may warrant an absence must be discussed with the instructor before the scheduled time of the examination. Failure to notify the instructor as stated will result in a zero for the exam.

3. Lab reports are due one week after lab activity unless otherwise specified. Late assignments will result in a grade reduction of 5% for each day that it is late. Late assignments must be submitted prior to the next lab meeting.

F. Grading Policy:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93 ≤ A ≤ 100</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>90 ≤ A- &lt; 93</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>87 ≤ B+ &lt; 90</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>83 ≤ B &lt; 87</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>80 ≤ B- &lt; 83</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>77 ≤ C+ &lt; 80</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>73 ≤ C &lt; 77</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>70 ≤ C- &lt; 73</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>67 ≤ D+ &lt; 70</td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>63 ≤ D &lt; 67</td>
<td>1.0</td>
</tr>
<tr>
<td>D-</td>
<td>60 ≤ D- &lt; 63</td>
<td>0.7</td>
</tr>
<tr>
<td>F</td>
<td>0 ≤ F &lt; 60</td>
<td>0.0</td>
</tr>
</tbody>
</table>
G. Faculty

Instructor: Dr. Erika Lewis, PT, Ed.D, MS, CHT
Email: Erika_Lewis@uml.edu
Phone: (978) 934-4405
Office: O'Leary 540L
Office Hours: Monday, Wednesday, and Friday 1:00 - 2:00 pm

Laboratory Instructors:

<table>
<thead>
<tr>
<th>Sec</th>
<th>Day of week</th>
<th>Time</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>801</td>
<td>Monday</td>
<td>8:00 – 10:50 am</td>
<td>Lyra Clark: <a href="mailto:Lyra_clark@student.uml.edu">Lyra_clark@student.uml.edu</a></td>
</tr>
<tr>
<td>802</td>
<td>Tuesday</td>
<td>8:00 – 10:50 am</td>
<td>Dr. Wu: <a href="mailto:YiNing_Wu@uml.edu">YiNing_Wu@uml.edu</a></td>
</tr>
<tr>
<td>803</td>
<td>Wed</td>
<td>8:00 – 10:50 am</td>
<td>Dr. Wu: <a href="mailto:YiNing_Wu@uml.edu">YiNing_Wu@uml.edu</a></td>
</tr>
<tr>
<td>804</td>
<td>Thursday</td>
<td>8:00 – 10:50 am</td>
<td>Dr. James: <a href="mailto:Eric_James@uml.edu">Eric_James@uml.edu</a></td>
</tr>
<tr>
<td>805</td>
<td>Friday</td>
<td>8:00 – 10:50 am</td>
<td>Dr. James: <a href="mailto:Eric_James@uml.edu">Eric_James@uml.edu</a></td>
</tr>
<tr>
<td>806</td>
<td>Thursday</td>
<td>11:00- 2:00 pm</td>
<td>Melissa Alonardo, DPT: <a href="mailto:melalonardo@gmail.com">melalonardo@gmail.com</a></td>
</tr>
<tr>
<td>807</td>
<td>Monday</td>
<td>3:00 – 5:00 pm</td>
<td>Lyra Clark: <a href="mailto:Lyra_clark@student.uml.edu">Lyra_clark@student.uml.edu</a></td>
</tr>
</tbody>
</table>

H. Use of Technology in the Classroom: All cell phones/pagers must be turned off during class time. Personal phone calls, email or texting is not permitted during class. Laptops may be used for class work only. Students engaging in any activities other than class work will be asked to leave class.

I. College of Health Sciences Social Media Policy

The College of Health Sciences recognizes that all involved in health care have a moral, ethical and legal responsibility to maintain individual’s rights to privacy. HIPAA protects patient privacy by law and includes any individually identifiable patient information in oral or recorded form where the information could identify an individual by name, medical condition, demographic data or other means. Students in the College of Health Sciences are expected to act with honesty, integrity and respect the privacy rights of others. All students in the College of Health Sciences are expected to meet their professional responsibilities when using social media and other electronic networks including but not limited to blogs, instant messaging, social networking sites, email, public media sites and photographs. This policy prohibits posting written material or photographs that identify patients, health care agencies, educational institutions or other students in clinical sites or patient related activities. This policy applies whether using University devices and computers or personal equipment. In addition, all College of Health Sciences students are required to abide by clinical agency policies related to the use of social media and technological resources. Failure to adhere to this policy may result in probation, suspension or dismissal from the College of Health Sciences and/or legal prosecution under the requirements of HIPAA. For more information on the Social Media Policy go to the webpage below: http://www.uml.edu/health-sciences/Current-Students/Student-Policies.aspx

V. Required Text:


Suggested Readings:


VI. Academic Integrity:
All students are advised there is a University policy regarding dishonesty and cheating, and a department Honor Code. It is the students' responsibility to familiarize themselves with these policies and to adhere to the Honor Code. University policies will be strictly enforced. If necessary, contact the instructor or your advisor for clarification of these policies. For more information see the website on Academic Integrity listed below.

http://www.uml.edu/Catalog/Undergraduate/Policies/Academic-Integrity.aspx

Academic dishonesty includes but is not limited to:

**Cheating** - use, or attempted use, of trickery, artifice, deception, breach of confidence, fraud, or misrepresentation of one's academic work. Submission of the same work in its entirety for credit in two courses without obtaining the permission of the instructors constitutes cheating. Collaborating with others when not explicitly allowed by the instructor constitutes cheating.

**Fabrication** - falsification or invention of any information or citation in any academic exercise.

**Plagiarism** - representing, whether intentionally or unintentionally, the words or ideas of another as one's own work in any academic exercise.

**Facilitating dishonesty** - helping or attempting to help another commit an act of academic dishonesty, including substituting for another in an examination, misrepresenting oneself, or allowing others to represent as their own one's papers, reports, or academic works.

VII. Disability Services:
If a student needs special accommodations under the Americans with Disabilities Act in order to achieve course objectives and/or requirements, it is the student's responsibility to notify the instructor and provide documentation from the Office of Disability Services within two weeks of receiving this syllabus. For detailed information contact: Office of the Student Disability Services, 240 O'Leary Library Building, UMass Lowell South, Ph. 978-934-4574.

( http://www.uml.edu/STUDENT-SERVICES/disability/ )

VIII. Services for Learning:
For detailed information contact: Division of Student Affairs, Cumnock Hall, UML North. Ph 978-934-2100

http://www.uml.edu/STUDENT-SERVICES/

IX. Credit Hour Policy
Federal definition of a credit hour requires that for every course credit awarded, a course must offer 15 hours of instructor led course activities and 30 hours of out-of-class student work.
Exercise Physiology Laboratory Report Format

1. **Title Page** - A single page containing the title of the lab, the course name and number, the authors, their relative contributions to the report, and the date submitted. Please see example for correct format of title page. A table of contents may also be included as the second page, and is encouraged if the report is longer than 8 pages, or has many subsections or appendices.

2. **Introduction (5%)** - This section will include a brief statement of the physiological principles under investigation, and the purpose of the lab experience.

3. **Materials & Methods (10%)** - This section will include data on the subjects, a description of the lab methods and all equipment used, what data was collected and how it will be analyzed.

4. **Results (30%)** - This section will provide a summary of the data collected. It is often best presented in Tables, Graphs, Pictures, or Equations. Raw data (such as computer print outs, copy of researcher lab notes, numerical calculations) should be included in the appendix. (See Appendix Section)

5. **Discussion (30%)** - This is the most important section. It provides your interpretation of the results. It should explain the physiological significance of the results. It is also appropriate to elaborate when a physiological principle has been well observed, or, when physiological principles have not been observed a discussion of possible sources of error should be included. The group should also report an opinion of the equipment, methods and procedures for their use in measuring the intended physiological principles (such as ease of use, concerns for reliability, validity).

6. **References (5%)** - Provide the reader with specific sources of the reference material cited.
   
   List alphabetically by author:
   
   Journal:

   Book:
   author (year) title of book, edition if appropriate, publisher, city, pages.

   If the material is a secondary source it should be cited as such. In this case, cite the author of the original article then "as published in" then cite the location that you have discovered the original. This is acceptable for this class, do not assume it to be acceptable elsewhere.

7. **Appendix/ces (5%)** - Always will have at least one showing the raw data.

8. **Overall Quality (15%)** - Professional appearance, initiative, conciseness. **Number the pages of your report.**
Course Title: Research Methods in Exercise Physiology
38.417.201, 38.417.202
3 credits
Tuesday or Thursday 11:00 – 12:15 pm
Online, group, and individual activities

Course Instructor: Cynthia Ferrara, Ph.D.
O’Leary 540M, 978-934-4399
Cynthia_Ferrara@uml.edu

Office Hours: Tuesday 10-12 am or by appointment

I. Course Description. This course will provide the exercise physiology student with the tools to critically analyze research in the health professions. The evaluation of published research will be emphasized. The following processes of scientific methodology will be covered: research question identification and hypotheses, review and critique of peer-reviewed research, research design, data collection (internal validity and reliability of measurements), and data interpretation.

The class meets once a week for 1 hour and 15 minutes. The course is a three credit course. It is assumed that you will be spending additional time each week working on online and group activities, in addition to completing pre-class work.

II. Course Objectives. Upon completion of the semester, the student will be able to

1. Discuss and need for and the role of research in health professions
2. Formulate and identify research questions
3. Perform a library and internet search of peer-reviewed journals to address a specific research question
4. Critically evaluate peer-reviewed, published research
5. Translate the best evidence in the literature to answer an exercise-related question
6. Understand and explain ethical issues in research.
7. Design and conduct a research study, then analyze and present the results.
8. Understand the use of basic statistical tests and be able to interpret the results from an “EP” view

Teaching Methods: Group discussions, individual and group assignments

III. Required/Recommended Texts.

A good statistics book and readings as posted online or handed out in class.
IV. Attendance Policy. All students are expected to attend class, participate in online class discussions, and be punctual. Students who will be absent from class must email the instructor in advance of the class meeting when possible. Students should immediately notify the instructor about conflict between their religious observance and course due dates/examinations. Information on University attendance policies can be found in the online Undergraduate Student Manual:

http://www.uml.edu/Catalog/Undergraduate/Policies/Attendance-Policies.aspx

Students should expect the following reductions in their final grade based on absences or tardiness:

Unexcused Absences:
- Three unexcused absences: -3% points.
- Four to five absences: -5% points
- More than five absences: -7.5% points

Late for class:
- Three late arrivals: -1.5% points
- More than 3 late arrivals: -3% points
- More than 5 late arrivals: -5% points

In this class, and in all classes at the University of Massachusetts Lowell, students are expected to exhibit professional and respectful behavior that is conducive to a mutually beneficial learning environment in the classroom. Examples of inappropriate behavior include: text messaging during class, listening to music, or other cell phone use (other than the campus alert system), late arrivals, early departures, failure to follow instructor directives, and talking or otherwise disrupting the class. Students in violation of these standards may be asked to leave class and/or be referred to the Chair of the Physical Therapy Department and/or Dean of Students for disciplinary action.

V. Evaluation methods.

Mini Research Project:
- Paper 15%
- NIH Training module 10%
- Informed Consent 10%
- Data Collection
  - Group and self eval 5%
- Abstract 5%
- Poster 15%

Critique
- Article and initial summary 5%
- Critique 15%

Statistics Review (Online test) 10%
Unannounced quizzes 15%
Total 100%
VI. Grading

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93-100%</td>
<td>A</td>
</tr>
<tr>
<td>90-92%</td>
<td>A-</td>
</tr>
<tr>
<td>87-89</td>
<td>B+</td>
</tr>
<tr>
<td>83-86%</td>
<td>B</td>
</tr>
<tr>
<td>80-82%</td>
<td>B-</td>
</tr>
<tr>
<td>77-79%</td>
<td>C+</td>
</tr>
<tr>
<td>73-76%</td>
<td>C</td>
</tr>
<tr>
<td>70-72%</td>
<td>C-</td>
</tr>
<tr>
<td>67-69%</td>
<td>D+</td>
</tr>
<tr>
<td>63-66%</td>
<td>D</td>
</tr>
<tr>
<td>&lt;63%</td>
<td>Fail</td>
</tr>
</tbody>
</table>

Students must earn a grade of C or higher in the class in order to remain in the Exercise Physiology program.

The instructor reserves the right to change a student’s final grade as much as 5% (higher or lower) based on class participation and professional behaviors.

VII. Dishonesty and Cheating

All students are advised that there is a University policy regarding academic integrity. It is the students’ responsibility to familiarize themselves with these policies. If necessary, contact your advisor regarding these policies.

http://www.uml.edu/Catalog/Undergraduate/Policies/Academic-Integrity.aspx

Students who are found to be representing another student’s work as their own or otherwise plagiarizing another’s work will receive a “0” for the assignment. If this occurs more than once in the semester, the student will receive an automatic “F” in the class.

VIII. Student Disability Services:

If you have or believe you have a disability (such as a learning disability, hearing impairment, etc) for which you wish some modification of typical classroom instruction or testing, contact your advisor and the instructor within the first week of classes, so the necessary modifications can be made as soon as possible. If you are uncertain about the nature of the disability or appropriate strategies to accommodate that disability, please contact your advisor, the instructor, and the Student Disability Services (http://www.uml.edu/STUDENT-SERVICES/disability/) within the first week of classes for testing.

IX. Services for Learning:

The UMass Lowell professionals who work in the Division of Student Affairs are committed to providing a seamless system of support that encourages development of the individual as a whole, including physical, emotional, social, academic and career goals. More information about services provided can be found at the following link:

http://www.uml.edu/STUDENT-SERVICES/
X. Cell Phone (and other devices) Policy
While in class students are expected to have their cell phones, beepers and other noise producing gadgets and devices turned off. During exams there will be no cell phones or other electronic devices allowed. Answering a call during class will result in an automatic “F” in the class. Texting, playing games, or watching videos on your phone during class will result in an automatic “F”.

XI. College of Health Sciences Social Media Policy
The College of Health Sciences recognizes that all involved in health care have a moral, ethical and legal responsibility to maintain individual’s rights to privacy. HIPAA protects patient privacy by law and includes any individually identifiable patient information in oral or recorded form where the information could identify an individual by name, medical condition, demographic data or other means. Students in the College of Health Sciences are expected to act with honesty, integrity and respect the privacy rights of others. All students in the College of Health Sciences are expected to meet their professional responsibilities when using social media and other electronic networks including but not limited to blogs, instant messaging, social networking sites, email, public media sites and photographs. This policy prohibits posting written material or photographs that identify patients, health care agencies, educational institutions or other students in clinical sites or patient related activities. This policy applies whether using University devices and computers or personal equipment. In addition, all College of Health Sciences students are required to abide by clinical agency policies related to the use of social media and technological resources.
Failure to adhere to this policy may result in probation, suspension or dismissal from the College of Health Sciences and/or legal prosecution under the requirements of HIPAA.

Please check out additional College of Health Sciences policies at the following link:

http://www.uml.edu/health-sciences/Current-Students/Student-Policies.aspx
Tentative course Schedule

9/4, 9/9 Intro to course, importance of research
Evidence-based practice in health professions

9/11, 9/16 Overview of the research process, levels of evidence

Readings (Available on Blackboard):


9/18, 9/23 Methodological issues: Measurement issues, reliability and validity, sampling

Article and initial summary due

Readings (Available on Blackboard) and video links:

If you don’t want to read, check out this video link on reliability and validity (Parts 1-3) http://www.youtube.com/watch?v=DS8Hw0Ort4w (12:12 min, 14:58 min, 10:13 min)

9/25, 9/30 Internal and External Validity issues

Readings and video links
Factors that can affect the accuracy and precision of physiological measurements. Journal of Nursing Measurement, 12(3), 163-167.


If you don’t want to read, check out this video link on internal validity issues: www.youtube.com/watch?v=F7kjR30tEAc (21:23 min)

10/2, 10/7 Experimental Research

Readings:

Article Critique Due
10/9, 10/14  Experimental Research

10/16, 10/21  Qualitative Research

**Readings:**
Introducing Qualitative Inquiry. Qualitative Research in Physical Activity and the Health Professions. Pitney and Parker (editors).

**Paper due**

10/23, 10/28  Research Ethics

**Readings:**

Perkins, E. (2001). Johns Hopkins’ tragedy: Could librarians have prevented a death?

**NIH Training certificate due. Please bring a print out of your completion certificate**

**Online Stats test completed by Friday 10/24/14 at 5 pm**

10/30, 11/4 Collecting data

**Informed consent due on Monday 11/3**

11/6, 11/11 Collecting data

11/13, 11/18 Interpreting statistical information and presenting your data

11/20, 11/25 Putting together your poster

**Abstracts Due 11/21 at 5 pm**

12/4, 12/9  **Poster presentations!!** Be prepared to discuss the main points of your study and the results in 5 minutes or less!

**Group and self-evaluation forms due on 12/4 (Tuesday) or 12/9 (Thursday)**
Description of assignments:

1. Article Critique: The critique will demonstrate your ability to apply the concepts you have learned in class in an area of interest in exercise physiology/sports medicine/physical therapy/ health care research. This is not a group project—you will work independently on the critique.

Assignment part #1: Due 9/18, 9/23
The article you choose for this assignment must be a research article and the best evidence you can find to answer your particular question.
-Hand in article: Must hand in article to get full credit
-One page initial summary:
  -What research or clinical question you chose
  -Why is this question important?
  -Describe your lit search, including resources used, key words, and limitations you used in the search. How many articles did you find (should be approximately 30 papers)?
  -Include a copy of your lit search (or send to me via email—some search engines will allow you to save the search and send)

Assignment part #2: Article Critique. Due 10/2, 10/7
The critique should include an analysis of the following components:

1. Address the following areas in your critique and explain the reasoning for your responses. Use this list as a guide to your critique of the article. You may not necessarily answer every question in this list. You will need to briefly explain your answer to receive full credit (answering yes or no to the question would not allow you to receive full credit. You must provide some explanation to your answer).

   a. Why did you choose this particular article? (Use info presented in class on best evidence and research designs in providing this explanation).

   b. Introduction/Literature review:
      -State the research problem and its significance in your own words. Does the paper clearly describe the research problem and its significance? Why do you think this?
      -Is there clear research questions or hypotheses? Do these logically flow from the literature review or is more information needed to understand why the investigators have chosen the question or hypotheses?

   c. Methods:
      Sampling
      -Was random sampling used? If not, what type of sampling was used?
      -If two or more comparison groups were not formed randomly, is there evidence that they were initially equal to each other?
- Did the author clearly identify inclusion and exclusion criteria? Was there a control group?
- Is the overall size of the sample adequate?

Study Design
- What is the study design? Use terminology used in class.

Treatments or conditions
- If there are different treatments, are the treatments described in sufficient detail that another investigator could repeat the study?
- Are there any issues related to the administration of the different treatments and would these issues lead to problems in interpretation of the results? How would you “fix” these issues?
- Has the researcher considered attrition?

Instrumentation
- Were the threats to internal and external validity clearly identified? If not, you should identify these threats and discuss why they are important.
- Were steps to data collection clearly identified with validity and reliability testing of the instruments described? For published instruments or methods, were sources cited where additional information can be obtained?
- Do the researchers discuss obvious limitations of their instrumentation? How do they justify these limitations?
- Overall, is the instrumentation adequate?

d. Results:
- Was the choice of stats appropriate? Explain why you think so.
- Overall, is the presentation of the results understandable?

e. Discussion:
- Are the results linked back to previous studies and discussed clearly?
- Are limitations of the study described?
- Are specific implications of the results discussed?
- Are suggestions for future research discussed?

2. Describe what you see as strengths and limitations of the article. Comment specifically on research design, methodology, and sampling strategies. Be clear as to what are your own ideas and the ideas of the researcher
3. Describe what you think are the implications of the study. Will the research affect exercise training methods, clinical treatment, etc?
4. Critique must be typed (12 font), approximately 5 pages
   Paper must be referenced appropriately (APA format)
   The article must be handed in with the paper
Mini-Research Project:
Students will design a study to address an exercise physiology-related question. Students will work in groups of 2-3 people for this project. Grades will be based on appropriateness of study design, methodology, and appropriate consideration of internal and external validity issues. Students will then “recruit” subjects for their study, collect and analyze data, and present their results to the class in a poster format.

1. **Paper (Due 10/16 (Thursday), 10/21 (Tuesday))** describing the study design, methodology, and consideration of validity issues, and anticipated statistical procedures, submitted prior to collection of data for the study. The paper should include:

   **Intro:** What is the purpose of the study? Why is this important? What does previous research say about your research question.

   **Study design and methodology:** What is the study design? Use the terminology from class. Is it an appropriate design to address/answer the research question?

   What internal validity issues will affect your results? How did you control for these issues?

   What external validity issues affect your results? How did you control for these issues?

   What will you measure? Do you provide convincing evidence that this is a valid and reliable measure?

   Who are your subjects? How will you recruit them? What are the inclusion/exclusion criteria to participate in the study?

   What type of statistical analysis do you plan to use and why? How do you know it is the right type of stat analysis?

2. **NIH training module (Due 10/23 (Thursday), 10/28 (Tuesday)).**
   Must be completed prior to collection of data.
   “Protecting human subjects” (http://phrp.nihtraining.com/users/login.php)
   You must pass the four quizzes (70% or higher) and print out the completion certificate to bring to class.

4. **Data Collection**: Now, your group should be ready to start “recruiting” and collecting data.

5. **Abstracts Due Friday 11/21 at 5 pm**

6. **Poster: Due 12/4 (Thursday), 12/9 (Tuesday):**
The following parts/sections should be included in your poster and will be graded accordingly:

   **Abstract**
   
   **Introduction**: What is the purpose of your study? Why is this important? What is the research question? (2 pt)

   **Methods**: Description of the methods, equipment used, subjects. What data was collected and how it was analyzed. (2 pts)

   **Results**: Summary of the data collected, including tables, graphs, pictures, etc, as appropriate. (2.5 pts)

   **Discussion**: (2.5 pts)
   - Provide an interpretation of the results and the physiological significance of the results. How do your results compare to previously published studies
   - Discussion of possible sources of error
   - Conclusions

   **References or citations** (1 pt)

   **Overall quality**: Professional appearance, neatness, conciseness, overall effort, correct spelling and punctuation. (2.5 pt)

   Be prepared to discuss the main points of your study and the results in 5 minutes or less! (2.5 pts)

7. **Self and group evaluation of effort**: **Due 12/4 (Thursday), 12/9 (Tuesday).**
Complete the self and group evaluation forms.
IRB INFORMED CONSENT or AGREEMENT TO PARTICIPATE FORM

IRB No.: Rev. No./Date:

Consent Form Title: (for Students, Teachers, Focus Group, etc. if there are multiple groups)

Project Title:
Principal Investigator:
Contact Information:
Co-PI(s):
Student Investigator(s):
Date Submitted:

This form has been approved for use by the UML IRB and is valid for up to one year from the approval date. (PIs - Give a copy of this form to the study participant after they sign it. Originals are to be retained by the PI.)

Authorized IRB Approval Signature: Approval Date:

Note: The following are essential elements of Informed Consent. The section titles may be edited but the information for each element must be included. Please delete these two sentences and all statements in red on this form before submitting for review:

1. Study Purpose:
2. Procedure and Duration:
3. Potential Risks and Discomfort:
4. Incentives/Compensation (if any):
5. Anticipated Benefits to the Subject or to Non-subjects:
6. Right to Refusal or Withdrawal of Participation:
7. Assurances of Privacy and Confidentiality:
8. Additional Information (Include contact information for researchers):

PRINCIPAL INVESTIGATOR SIGNATURE(S) (See definition of PI for who is authorized to sign here.)
1. Printed Name: Signature: Date:
2. Printed Name: Signature: Date:

PERSON OBTAINING CONSENT
Printed Name: Date:

Signature:

PARTICIPANT SIGNATURE (Note: if you do not need parental or agency consent, edit this section as appropriate and take out statements in red, also.)
I understand the potential risks and/or discomforts that have been described in this document and by the researcher. By signing below, I am indicating that I have read this document, had the opportunity to discuss any concerns and ask questions about the research, and understand the risks and consequences from participating in this study.

Research Participant:
Printed Name: Date:

Signature:

Parent, Guardian, or Legal Representative: (if applicable)
Printed Name: Date:

Signature:

Agency or Administrative Official: (if applicable)
Printed Name: Date:

Signature:
College of Health Sciences
Department of Physical Therapy

<table>
<thead>
<tr>
<th>Course Number</th>
<th>38.418</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Title</td>
<td>Senior Seminar</td>
</tr>
<tr>
<td>Credits</td>
<td>3</td>
</tr>
<tr>
<td>Semester/Time</td>
<td>Fall Semester  Thursdays 3:30-6:20pm</td>
</tr>
<tr>
<td>Faculty</td>
<td>Dr. Michele Fox</td>
</tr>
<tr>
<td>Office Hours</td>
<td>Monday 1:00-2:30pm  Thursday 10:30-12:00pm</td>
</tr>
<tr>
<td>Office</td>
<td>Weed 322A</td>
</tr>
<tr>
<td>Phone/Email</td>
<td>978-934-4766  <a href="mailto:michele_fox@uml.edu">michele_fox@uml.edu</a></td>
</tr>
</tbody>
</table>

### Course Description
The Senior Seminar, offered concurrently with 38.412 Clinical Practicum, will be an on-campus discussion of the practicum experience.

### Course Objectives
Upon completion of this course, the students will:

1. Demonstrate integration of course theories (from EP program requirement courses) with application and clinical and professional experiences, using a reflective journal.
2. Participate in discussions related to integration of psychosocial and group dynamic processes and/or scientific theories and concepts with practical and/or clinical decision making and approaches.
3. Prepare and lead a group discussion (activities) related to objective 2.

### General Information

#### A. Teaching methods:
Discussions, audiovisual materials, small group activity, role playing, case studies, readings, written assignments, written examination, online discussion, group assignments, class participation and attendance.

#### B. Attendance:
Attendance is **required at all classes**. Students should inform the instructor by email days that they will be absent due to sickness, a family emergency, or religious holidays. This should be done as early as possible in the semester and always prior to the day(s) the student will be absent. **Absence from class will result in loss of 3 points per class missed.** Students who are observing a **religious holiday** are excused from class that day, but will be responsible for the work missed. Students must speak with the instructor before the scheduled class in order for an absence to be an excused absence.

C. Evaluation Methods:

<table>
<thead>
<tr>
<th>Evaluation Method</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflection Journal</td>
<td>30%</td>
</tr>
<tr>
<td>Group Presentation/Discussion</td>
<td>30%</td>
</tr>
<tr>
<td>Case Studies/Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Written Final Exam</td>
<td>15%</td>
</tr>
<tr>
<td>Class attendance/Participation</td>
<td>5%</td>
</tr>
</tbody>
</table>

D. Grading Scale:

A = 93-100  A- = 90-92  B+ = 87-89  B = 83-86  B- = 80-82  
C+ = 77-79  C = 73-76  C- = 70-72  D+ = 67-69  D = 63-66  
F = 62 or below.

Please remember that EP students must receive no grade less than a C in major courses.

The instructor reserves the right to change a student’s final grade as much as 5% (higher or lower) based on class participation and professional behaviors.

E. Academic Integrity Policy:

All students are advised that there is a University policy regarding academic integrity and a department Honor Code. It is the students’ responsibility to familiarize themselves with these policies and to adhere to the Honor Code. If necessary, contact your advisor regarding these policies.

http://www.uml.edu/Catalog/Undergraduate/Policies/Academic-Integrity.aspx

Also for your convenience they are located in the section on Academic Dishonesty and Prohibited Academic Practice and Behavior in the EP Student Manual. The EP manual can be found online at the department’s web site.

Students are required to go through the IRB if they plan to present or publish any information done on human subjects outside of the scope of this class.

Exercise Physiologists are professionals. It is your responsibility to uphold the respect and dignity of your chosen profession.

F. Student Policies

Students must follow the policies on social media, criminal background checks and drug screenings. Please visit the CHS Student Policies page:

http://www.uml.edu/health-sciences/Current-Students/Student-Policies.aspx

G. Cell Phones and Other Devices:

All students should turn off or mute cell phones, beepers, and other electronic devices during class. Personal phone calls, email or texting is not permitted during class. Laptops may be used for class work only. Students engaging in any activities other than class work will be asked to leave class. During exams there will be no cell phones or other electronic devices allowed.
H. **Student Disability Services:**
In accordance with University policy and the ADA, I will provide accommodation for students with documented disabilities. If you have a disability, please contact the Office of Disability Services within the first two weeks of class. This documentation is confidential.

For detailed information contact: Office of the Student Disability Services, 240 O’Leary Library Building, UMass Lowell South, Ph. 978-934-4574. Disability @uml.edu (http://www.uml.edu/STUDENT-SERVICES/disability/)

I. **Services for Learning:**
For detailed information contact: Division of Student Affairs, Cumnock Hall, UML North. Ph 978-934-2100 http://www.uml.edu/student-services/

J. **Credit Hour Policy**
Federal definition of a credit hour requires that for every course credit awarded, a course must offer 15 hours of instructor led course activities and 30 hours of out-of-class student work.

<table>
<thead>
<tr>
<th>Course Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflection Journal 30%</td>
</tr>
<tr>
<td>Group Presentation/Discussion 30%</td>
</tr>
<tr>
<td>Case Studies/Assignments 20%</td>
</tr>
<tr>
<td>Written Final Exam 15%</td>
</tr>
<tr>
<td>Class attendance/Participation 5%</td>
</tr>
</tbody>
</table>

**Weekly Reflection Journals:** Students can examine their thoughts and experiences through journals, and further the learning they have done in relation to the clinical experience. Journal reflections should include writing of personal beliefs, attitudes and the interaction with clinical experiences and academic preparation. Students record thoughts, observations, feelings, activities and questions in a journal throughout the semester with bi-weekly entries. Entries will be posted on blackboard every two weeks. All entries will be printed and turned in together on the final day of class or emailed, as one document, to the instructor on the last day of class.

**Case Studies:** Students will be asked to reflect on a case study posted on Blackboard. Students will respond with their thoughts/beliefs along with their rationales. They must then respond to other classmate’s postings.

**Group Presentation/Discussion:** Students will be assigned in groups. Group members must include individuals from different practicum sites. Students will be expected to prepare in advance to lead a class in a discussion. Discussion leaders are responsible for providing a relevant topic (related to some aspect of their practicum experience), required reading materials for class discussion in advance, and preparing cases/class activities for discussion. Discussion leaders are responsible to provide insights and ideas that stimulate class discussion with a
comparison of the experiences from the different practicum sites related to the topic. Each group will present the instructor with 4 multiple choice questions on the day of the discussion which will be used in the final examination.

**Possible topics include:**
- Recognizing attitudes, values, and beliefs of oneself and others.
- Ethics in the health care profession
- Communication: How to deal with difficult people
- Motivation: how to motivate the unmotivated client
- Cross-Cultural Awareness: Latino/ African American/ Asian/ Native American Cultures
- Conflict resolution – with co-workers; clients; patients; supervisors
- Evidence based practice in Exercise physiology
- Disability
- Spirituality
- Stress management
- Preparation for entry into the “real world”- networking, job search,

**Examinations:** Final examination consists of multiple choice questions from group presentations. Make-up examinations will be given only in specific cases of illness, family emergency, or religious holiday. Faculty must be notified before the scheduled time of the examination. Failure to notify the instructor as stated will result in a zero for the exam.

**Textbook/Readings**
There are no required textbooks for this class. Readings will be posted on blackboard.

**Useful Web-Resources:**

- American Public Health Association (APHA) – [http://www.apha.org](http://www.apha.org)
## Course Outline & Class Schedule:

**Fall 2014 Course calendar:** *(subject to change)*

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>September 4</strong></td>
<td>Introduction to course, review syllabi</td>
</tr>
<tr>
<td></td>
<td>Introduction to Practicum logistics, Ann Bratton, Practicum Supervisor</td>
</tr>
<tr>
<td></td>
<td>Discussion re: group presentations, journals, case studies on Blackboard, practicum. Assign groups. First day of clinic: what to do and what to expect Review Blood Pressure</td>
</tr>
<tr>
<td><strong>September 11</strong></td>
<td>LEADER: Dr. Fox  <strong>Client-Professional Relationships and Professional Boundaries</strong> Case study on Blackboard due <em>prior to class</em> Emergency policy and hours forms due to Dr. Fox- be sure they include your site instructors email address and phone number</td>
</tr>
<tr>
<td><strong>September 18</strong></td>
<td>TBD</td>
</tr>
<tr>
<td></td>
<td><em>Case Study on Blackboard due prior to class</em></td>
</tr>
<tr>
<td><strong>September 25</strong></td>
<td>LEADERS: Journals due start of the week (Sept 22th at 4pm)</td>
</tr>
<tr>
<td><strong>October 2</strong></td>
<td>LEADERS:</td>
</tr>
<tr>
<td><strong>October 9</strong></td>
<td>Guest Speaker: <strong>Anne Apigian from Career Services</strong> Resumes, Interviews, Networking, etc. Journals due start of the week October 6th at 4pm</td>
</tr>
<tr>
<td><strong>October 16</strong></td>
<td>LEADERS: Journals due start of the week including midterm reflection. (Oct 20th by 4pm). Midterm evaluations must be completed with instructor by the end of the week. (self and instructors version)</td>
</tr>
<tr>
<td><strong>October 23</strong></td>
<td>LEADERS: Journals due start of the week (Nov 3rd at 4pm)</td>
</tr>
<tr>
<td><strong>November 6</strong></td>
<td>LEADERS: Journals due start of the week (Nov. 17th at 4pm)</td>
</tr>
<tr>
<td><strong>November 13</strong></td>
<td>TBD</td>
</tr>
<tr>
<td><strong>November 20</strong></td>
<td>LEADERS: Journals due start of the week (Nov. 17th at 4pm)</td>
</tr>
<tr>
<td><strong>November 27</strong></td>
<td><strong>No class. Happy Thanksgiving!</strong> Final week of practicum for most students- may need to make up days missed due to holiday.</td>
</tr>
<tr>
<td><strong>December 4</strong></td>
<td>Exit Survey in computer lab <em>(mandatory assignment)</em> Final Exam Journals due start of the week including final reflection. (Dec.1st at 4pm)</td>
</tr>
<tr>
<td><strong>Monday December 8</strong></td>
<td><strong>FINAL JOURNAL DUE- full journal presented all together via email or in person to Dr. Fox</strong></td>
</tr>
</tbody>
</table>
**GROUP PRESENTATION GRADING RUBRIC**

**Presentation (65 points)**
- Presentation is well organized and well prepared. \(\_\_\_\_\_/15\)
- Demonstrates effective communication skills \(\_\_\_\_\_/10\)
  - Verbal and non-verbal communication
  - Presenters were confident in delivery
  - Personal appearance is appropriate
  - Presenters were enthusiastic.
- Material was presented in an interesting and interactive way. \(\_\_\_\_\_/10\)
  - Encourages participation by all classmates.
- Group Activity facilitated class participation in a creative way \(\_\_\_\_\_/10\)
- Material was valuable and beneficial for EP students \(\_\_\_\_/10\)
  - Discussion is based on EP versus physical therapy or Other health care professions
  - Discussion included information from research article
- Presentation was a minimum of 40 minutes in length. \(\_\_\_\_/10\)

**Submitted Materials:** (15 points)
- Article was submitted to Dr. Fox one week prior to your presentation \(\_\_/5\)
- Article is from a peer reviewed journal published within 5 years. \(\_\_/5\)
- Power Point emailed to Dr. Fox within 24 hours after presentation. \(\_\_/5\)

**Handout:** (10 points)
One page **handout** presented to the class with key points of your presentation \(\_\_/10\)

**Multiple Choice questions** (10 points)
Submit 4 appropriate **multiple choice questions**, with 4 possible answers. \(\_\_/10\)
Correct answer should be identified. Must be submitted *via email* on the day of the presentation.

Total grade: \(\_\_/100\)

*Grades can and will be adjusted if not all group members participate equally. This is a group project and must be done so! Students who do not turn in the group assessment on the day of the presentation will lose 2 points per day late.*
A. SENIOR SEMINAR REFLECTIVE JOURNAL GRADING RUBRIC

**Bi-Weekly entries (6 total)**

1. Submitted on time (4 points) _____________
2. Reflective in nature (3 points) _____________
3. 2 New Goals for the following weeks (3 points) _____________
   - Goals are clearly identified in the journal.
4. Discussed if goals achieved, if not reasons why (2 points)
   - It is clear if goals were met or not _____________

   **Total:** _____________/ 72 points

**Midterm reflection**

1. Submitted on time (2 points) _____________
2. Reflective (3 points) _____________
3. 2 goals for second half (2 points) _____________
4. 2 situations identified (4 points) _____________

   **Total:** _____________/ 11 points

**Final reflection**

1. Submitted on time (2 points) _____________
2. Reflective (3 points) _____________
3. 2 situations identified (4 points) _____________
4. Best and worst parts identified (3 points) _____________

   **Total:** _____________/ 12 points

**Final Journal**

All entries printed out and submitted together or _____________/ 5 points submitted via email in one document.
Journal must be stapled and include your name and practicum sites name. Journal must be turned in the last day of class or by Dec. 8th the latest.

Final grade: _____________/ 100 points
Please rate each of the members in your group (including yourself) with regard to their contribution to your group project on a scale of from 0 to 4 using the following scale. **DUE day of the presentation. Students who do not turn it in day of the presentation will lose 2 points/day late.**

<table>
<thead>
<tr>
<th>Ability to work with the group</th>
<th>Amount of Effort</th>
<th>Ability to carry out assigned tasks</th>
<th>Intellectual contribution</th>
<th>Overall Contribution to Project</th>
<th>Would be willing to work with this group member again, even in the real world.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Never showed up or was disruptive of the group process</td>
<td>None</td>
<td>Never met deadlines</td>
<td>Never said anything</td>
<td>None</td>
<td>No way</td>
</tr>
<tr>
<td>1 Participated, but wanted to go in a different direction than the group</td>
<td>poor</td>
<td>Got things done but usually late or incomplete</td>
<td>Minimum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Okay</td>
<td>Fair</td>
<td>Usually got things done on time</td>
<td>Was helpful</td>
<td>Average</td>
<td>Sure</td>
</tr>
<tr>
<td>3 Always participated, made sure everyone had a chance to participate</td>
<td>Good</td>
<td>Always got things done on time</td>
<td>Above average</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Helped get the group moving without dominating it</td>
<td>Above and beyond</td>
<td>Could be counted on to pick up the slack</td>
<td>Provided thoughtful, meaningful suggestions</td>
<td>Wouldn’t have been possible without her/him</td>
<td>Absolutely</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Ability to work with the group</th>
<th>Amount of Effort</th>
<th>Ability to carry out assigned tasks</th>
<th>Intellectual contribution</th>
<th>Overall Contribution to Project</th>
<th>Would be willing to work with this group member again, even in the real world.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(self)your name</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Course Description
This course provides an essential foundation for exercise prescription and programming, and sound educational practice. Factors that impede or enhance exercise compliance and progress are explored. Clinical teaching skills, safety, and professional behavior are also addressed. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Course Overview
Exercise Prescription and Programming is scientifically integrating and translational in focusing exercise physiology as an applied science to the practically oriented outcome of improving health and increasing performance. Fitness will be considered across various dimensions. Performance for this course will be considered as the best integration of several levels of systems (horizontally and vertically) for an optimal outcome across a wide spectrum of physical tasks - from basic ADL's and mobility which are difficult due to particular impairments; to athletic events which are difficult due to their absolute requirements in at least one dimension of fitness. Optimizing fitness and performance through exercise prescription and programming requires both spatial components (what should be done now - intensity, duration, frequency, mode) and temporal components (how to vary the spatial parameters over time - days, weeks, months, seasons, years). The course will build on your understanding gained from previous exercise physiology course work in the areas of testing and quantifying fitness and performance as well as stress and adaptation.

The course will also integrate materials from a broader spectrum of your required coursework through considerations of the psychosocial, social and even some historical dimensions of exercise as related to access, occupational health and environmental factors such as the built and natural environment as well as climate change.

Since the course provides a broad theoretical overview with extensions to still broad practical application there is a group project requirement so that students have the opportunity to develop a deeper familiarity with one of the broad course topics.
Course Objectives
Upon completion of this course, the students will be able to:
1. Compare and contrast fitness goals for: 1. Primary and secondary prevention; 2. Improving high level performance; and, 3. Improving performance in basic and instrumental activities of daily living (ADLs).
2. Explain the hierarchy of adaptation from epigenetic, physiologic, behavioral and cultural and its relevance in exercise programming and goal setting and the two way interaction between people and their environment.
3. Demonstrate the use of causal reasoning, deductive, inductive and abductive inference in using the best evidence to guide client examination, evaluation and exercise prescription.
4. Determine safe and effective exercise programs to achieve desired outcomes and goals.
5. Implement cardiorespiratory exercise prescriptions using the FITT principle (frequency, intensity, time, and type) for apparently healthy participants based on current health status, fitness goals and availability of time.
6. Implement exercise prescriptions using the FITT principle (frequency, intensity, time, and type) for flexibility, muscular strength, and muscular endurance for apparently healthy participants based on current health status, fitness goals and availability of time.
7. Establish exercise progression guidelines for resistance, aerobic and flexibility activity to achieve the goals of apparently healthy participants.
8. Prescribe and implement exercise programs for participants with controlled cardiovascular and pulmonary diseases.
9. Prescribe and implement exercise programs for healthy special populations (i.e., older adults, youth, pregnant women).
10. Optimize adoption of and adherence to exercise programs and other healthy behaviors by applying effective behavioral and motivational strategies.
11. Provide educational resources to support clients in the adoption and maintenance of healthy lifestyle behaviors.
12. Explain the integrated approach to occupational health protection and health promotion known as Total Worker Health and the key steps to what the UMass Lowell Center for Promoting Health in the New England Workforce (CPH-NEW) calls the participatory design of interventions approach.
13. Explain the beneficial effects of exercise in the well built and natural environment and the implications of social programs to build, preserve and restore environments to encourage physical activity.
14. Explain the implications of climate change to human health and exercise.

General Information
A. Teaching methods: lectures, discussions, readings

B. Attendance:
Attendance is mandatory. Students must notify faculty regarding absence prior to the start of the class in order for an absence to be an excused absence. Students should immediately notify the instructor about conflict between their religious observance and course due dates/examinations.
http://www.uml.edu/Catalog/Undergraduate/Policies/Attendance-Policies.aspx

C. Evaluation Methods:
Examinations (2) - 30% each
Journals - 40%
D. Grading Scale*:

A = 93-100  A- = 90-92  B+ = 87-89  B = 83-86
B- = 80-82  C+ = 77-79  C = 73-76  C- = 70-72
D+ = 66-69  D = 60-65  F = below 60

*EP Students are reminded that the EP program requires a grade of C or higher in all major courses.

E. Academic Integrity Policy:
All students are advised that there is a University policy regarding academic integrity. It is the students’ responsibility to familiarize themselves with these policies. If necessary, contact your advisor regarding these policies.
http://www.uml.edu/Catalog/Undergraduate/Policies/Academic-Integrity.aspx

F. Cell Phones and Other Devices:
All students should turn off or mute cell phones, beepers, and other electronic devices during class. During exams there will be no cell phones or other electronic devices allowed.

G. Student Disability Services:
For detailed information contact: Office of the Student Disability Services, 240 O’Leary Library Building, UMass Lowell South, Ph. 978-934-4574. (http://www.uml.edu/STUDENT-SERVICES/disability/)

H. Services for Learning:
For detailed information contact: Division of Student Affairs, Cumnock Hall, UML North. Ph 978-934-2100 (http://www.uml.edu/STUDENT-SERVICES/)

I. Credit Hour Policy
Federal definition of a credit hour requires that for every course credit awarded, a course must offer 15 hours of instructor led course activities and 30 hours of out-of-class student work.

J. Credits: 3

H. Schedule: Tuesday and Thursday, 12:30 - 1:45

I. Required Book:
Everest The First Ascent: How a Champion of Science Helped to Conquer the Mountain
Harriet Pugh Tuckey 2013
(Ordered late - no readings required until late september)

Course Requirements
A. Successful completion of all exams.
B. Completion of assigned readings prior to class lecture/discussion.
C. Class attendance and active participation in class in a professional manner (see generic abilities).
## Tentative Class Schedule:

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept 4</td>
<td>Course introduction, objectives, overview, approach, background, expectations</td>
</tr>
<tr>
<td>Sept 9</td>
<td>Major thread: Fitness goals; defining fitness; measuring fitness; fitness and adaptability</td>
</tr>
<tr>
<td>Sept 11</td>
<td>Major thread: Hierarchy of adaptation</td>
</tr>
<tr>
<td>Sept 16</td>
<td>Major thread: Causal reasoning, induction, deduction and abduction</td>
</tr>
<tr>
<td>Sept 18</td>
<td>Major thread: Examine - Evaluate - Prescribe - Program</td>
</tr>
<tr>
<td>Sept 23</td>
<td>What is a safe and effective exercise program?</td>
</tr>
<tr>
<td></td>
<td>What determines whether an exercise program is safe and effective?</td>
</tr>
<tr>
<td></td>
<td>What can you do to determine safe and effective exercise programs to achieve desired outcomes and goals?</td>
</tr>
<tr>
<td></td>
<td><strong>Start Weekly Journals (on Blackboard)</strong></td>
</tr>
<tr>
<td>Sept 25</td>
<td>Cardiorespiratory Exercise Prescriptions; Intensity, duration, training load</td>
</tr>
<tr>
<td>Sept 30</td>
<td>Flexibility, Muscular Strength and Endurance Exercise Prescriptions</td>
</tr>
<tr>
<td>Oct 2</td>
<td>Exercise Progression</td>
</tr>
<tr>
<td>Oct 7</td>
<td>Everest the first ascent, general introduction, goals of reading the book</td>
</tr>
<tr>
<td>Oct 9</td>
<td><strong>Examination 1</strong></td>
</tr>
<tr>
<td>Oct 14</td>
<td>Performance Training for Hockey</td>
</tr>
<tr>
<td></td>
<td>Guest Speaker: Devan McConnell</td>
</tr>
<tr>
<td>Oct 16</td>
<td>Cardiac Rehabilitation</td>
</tr>
<tr>
<td>Oct 21</td>
<td>Cardiac Rehabilitation</td>
</tr>
<tr>
<td>Oct 23</td>
<td>Pulmonary Rehabilitation</td>
</tr>
<tr>
<td>Oct 28</td>
<td>Total Worker Health</td>
</tr>
<tr>
<td></td>
<td>Guest Speaker: Dr. Laura Punnett</td>
</tr>
<tr>
<td>Oct 30</td>
<td>Optimizing adoption and adherence</td>
</tr>
<tr>
<td>Nov 4</td>
<td>Educational resources to support clients to adopt and maintain healthy lifestyle behaviors</td>
</tr>
<tr>
<td>Nov 6</td>
<td>Natural vs. Built environment</td>
</tr>
<tr>
<td>Nov 11</td>
<td><strong>No class - Veteran's day</strong></td>
</tr>
<tr>
<td>Nov 13</td>
<td>Climate change implications</td>
</tr>
<tr>
<td>Nov 18</td>
<td>Everest the first ascent - thoughts about the book related to exercise prescription</td>
</tr>
<tr>
<td>Nov 20</td>
<td>Case Studies</td>
</tr>
<tr>
<td>Nov 25</td>
<td>Case Studies</td>
</tr>
<tr>
<td>Nov 26</td>
<td>Wednesday - Thursday Class Schedule</td>
</tr>
<tr>
<td></td>
<td>Case Studies</td>
</tr>
<tr>
<td>Dec 2</td>
<td>Case Studies</td>
</tr>
<tr>
<td>Dec 4</td>
<td>Case Studies</td>
</tr>
<tr>
<td>Dec 9</td>
<td>Case Studies</td>
</tr>
<tr>
<td>Finals</td>
<td><strong>Examination 2 (Cumulative Final)</strong></td>
</tr>
</tbody>
</table>

*Required readings will be posted on Blackboard*
Appendix B: Spring Syllabi
Course: Introduction to Exercise Physiology
3 credits

Course Instructor and Information
Andrea C. Mendes PT, DPT, MS
Office: Weed Hall 210B
Phone: 978-934-4483
Email: andrea_mendes@uml.edu
Office Hours: T 11-12, W 10-11, F 10-11
Class time and Location: Weed LH 2
Tuesdays and Thursdays:
Section 202 12:30-1:45 p.m.
Section 201 2:00-3:15 p.m.

Teaching Assistant
Bryanna Hawkins
Bryanna_hawkins@student.uml.edu
**Email Bryanna with any attendance issues or conflicts.

Course Description
This course introduces students to the major in Exercise Physiology. Objectives of the major are covered along with beginning fitness principles, history of the profession, career options, and legal aspects of practice. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Course Objectives
Upon successful completion of this course, the students will be able to:

1. Describe and discuss the field of Exercise Physiology with respect to the wide array of disciplines, topics and areas of study that it encompasses. This will include an overview of the history of the profession as well as legal and ethical aspects of practice.
2. Discover the diversity of career options in Exercise Physiology by exploring various avenues for future career development.
3. Illustrate an understanding of terminology associated with exercise (physical activity, physical fitness, cardiorespiratory endurance, muscular strength, muscular endurance, flexibility) as defined by the American College of Sports Medicine (ACSM).
4. Discriminate the different types of muscle contractions (isometric, concentric, eccentric) and the importance of body weight and gravity as related to modifying the progression of exercising muscles.
5. Discuss the normal responses of the cardiopulmonary system during exercise.
6. Compare and contrast the benefits and risks associated with physical activity per ACSM’s guidelines.
7. Use the ACSM’s guidelines to formulate a pre-participation health screening given a case study. Purpose is to identify risk factors, basic precautions and monitoring during exercise.
8. Compose an exercise prescription by utilizing information from lecture as well as ACSM’s general principles of exercise prescription. Needs to include: frequency, intensity, time and type (FITT) per ACSM protocol.
9. Present a group project consisting of an analysis of a case study identifying appropriate pre-participation health screening tools, tests and measures.
10. Create an exercise prescription based on given case (above) after careful review of the results of your tests and measures. Present this as a group. Please be prepared to provide rationale and scientific evidence to defend your case presentation.

General Information

A. Teaching methods:
   * Strategies and tools to be employed during this course include:

   1. Traditional lectures
   2. Power point presentations
   3. Group discussions (SPARK book readings)
   4. Guest speakers
   5. Blackboard posting of content and assignments per week
   6. Student presentations

   Additional Resources:

   3. [http://www.asep.org/services/standards](http://www.asep.org/services/standards) website for the American Society of Exercise Physiologists (ASEP)

B. Attendance:
   Attendance is mandatory. Students must notify faculty regarding absence prior to the start of the class in order for an absence to be an excused absence. Students should immediately notify instructor about conflict between their religious observance and course time and dates. Students should notify the instructor via email as soon as possible in extenuating circumstances (illness, death in family).
**ALL students will be required to check in each day of class with the teaching assistant in order to be ACCOUNTED for in attendance.
Please review the policy for questions.
C. Evaluation methods:

(4) Quizzes each 10 points
(2) Exams each 20 points
(2) Group presentations each 10 points
TOTAL 100 points

D. Grading scale:

A    = 93 - 100
A-   = 90 - 92.99
B+   = 87 - 89.99
B    = 83 - 86.99
B-   = 80 - 82.99
C+   = 77 - 79.99
C    = 73 - 76.99
C-   = 70 - 72.99
D+   = 67 - 69.99
D    = 63 - 66.99
D-   = 60 - 62.99
F    = < 60

**Students are reminded they are required to maintain and overall GPA of 2.5 for continuation in the Exercise Physiology program.**
**The instructor reserves the right to deduct points from overall grade for unexcused absences (2 points/unexcused absence)**

E. Academic Integrity Policy:
All students are advised that there is a University policy regarding academic integrity. It is the student’s responsibility to familiarize themselves with these policies. If necessary, contact your advisor regarding these policies.

http://www.uml.edu/Catalog/Undergraduate/Policies/Academic-Integrity.aspx

F. Cell phones and Other Devices:
All students should turn off or mute cell phones, beepers and other electronic devices during class. During exams there will be no cell phones or other electronic devices allowed.
G.  **Student Disability Services:**
For detailed information contact:

**Student Disability Services**

One University Avenue  
Cumnock Hall C4  
Lowell, MA 01854  
Phone: 978-934-4574  
Fax: 978-934-2032  
E-mail: Disability@uml.edu

H.  **General Student Services:**

The UMass Lowell professionals who work in the Division of Student Affairs are committed to providing a seamless system of support that encourages development of the individual as a whole, including physical, emotional, social, academic and career goals.

For detailed information contact:

The Office of the Associate Vice Chancellor of Student Affairs and University Events is located on the first floor of Cumnock Hall, UMass Lowell North. The hours of operation are 8:30 a.m. to 5 p.m., Monday through Friday.

Contact us by:

- E-mail: Student_Affairs@uml.edu  
- Phone: 978-934-2100  
- Address: Division of Student Affairs  
  UMass Lowell  
  One University Avenue  
  Lowell, MA 01854

I.  **Centers for Learning:**
For detailed information regarding tutoring and academic support, follow the link below:

[http://www.uml.edu/class/](http://www.uml.edu/class/)

J.  **Credit hour policy:**
Federal definition of a credit hour requires that for every course credit awarded, a course must offer 15 hours of instructor led activities and 30 hours of out-of class student work
K. **Course Requirements: (assignments and % of grade)**

Quizzes (4): Each quiz will be worth 10 points. You will be tested on material covered in class as well as corresponding readings and power points. TOTAL = 40 points

Exams (2): Each exam will be worth 20 points. One exam will be administered mid-term and the second exam will be the final exam. The exams will cover more material than the quizzes and will require that you have completed all readings and assignments up to the day of the exam. You should be familiar with all material from class, readings, power points as well as class discussions related to Spark. TOTAL = 40 points

Presentations (2): Each group presentation will be worth 10 points. You will be graded on completion of the material based on rubric. Refer to grading rubrics. Each group member will receive the same grade based on your group’s total presentation per the rubric as outlined. TOTAL= 20 points

SEMESTER TOTAL GRADE = 100 possible points

L. **Grading Rubrics for Presentations:**

Refer to rubrics provided at the end of the syllabus material.

**Please note that each group must hand in a typed summary of their project per the rubric. This should be limited to 1-2 pages.**

**The presentations must be professionally prepared in order to receive consideration of full credit. Remember that you will be presenting to a large group; power points and/or other visual aids should be considered.**

M. **Required Materials:**


N. **Course content per week:**

Refer to Blackboard link issued via email correspondence
### RUBRIC: GROUP PRESENTATION I

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>Satisfactory</th>
<th>Incomplete</th>
<th>Unsatisfactory</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyze case study as assigned. Identify medical terminology and indicate how the medical history is important in the understanding of the case. (3)</td>
<td>The group is able to correctly identify 100% of the medical terminology and report on the relevance of the medical history as related to the anticipated pre-exercise screening. (3)</td>
<td>The group members correctly identify &gt; or = 75% of the medical terminology with intermediate level of understanding of the relevance of the medical history. (2)</td>
<td>The group members correctly identify &lt; 75% of the medical terminology with a lack of understanding of the relevance of the medical history. (0-1)</td>
<td></td>
</tr>
<tr>
<td>Tools and measures: group correctly identifies appropriate tools, tests and measures for pre-exercise screening with 90-100% accuracy. (3)</td>
<td>Groups identifies appropriate tools, tests and measures with 90-100% accuracy. (3)</td>
<td>Group identifies at least 75% of the appropriate tools, tests and measures. (2)</td>
<td>Group identifies &lt; 75% of the appropriate tools, tests and measures. (0-1)</td>
<td></td>
</tr>
<tr>
<td>Group presentation of definitions of specific exercise terminology (with examples) as assigned. (3)</td>
<td>Group effectively provides accurate definitions of assigned terminology with 1 example for each. (3)</td>
<td>Group provides definitions of assigned terminology with examples but with limited accuracy and clarity. (2)</td>
<td>Group is unable to provide adequate definitions and examples of exercise terminology as assigned. (0-1)</td>
<td></td>
</tr>
<tr>
<td>Handouts (1)</td>
<td>Group provides typed summary of presentation with assigned case (1-2 pages) (1)</td>
<td>Group provides handout which lacks full summary of case presentation (.5)</td>
<td>Group does not provide handout. (0).</td>
<td></td>
</tr>
</tbody>
</table>
### RUBRIC: GROUP PRESENTATION II

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>Satisfactory</th>
<th>Incomplete</th>
<th>Unsatisfactory</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyze case study as assigned. Critique the results of the tests and measures that you chose to utilize in your pre-exercise screening. (3)</td>
<td>The group is able to effectively critique the pre-exercise screening using proper and accurate terminology. (3)</td>
<td>The group provides an analysis of their pre-exercise screening with inconsistent accuracy. (2)</td>
<td>The group is unable to provide an adequate analysis of their pre-exercise screening. (0-1)</td>
<td></td>
</tr>
<tr>
<td><strong>EXERCISE PRESCRIPTION: Group presentation of exercise prescription using frequency, intensity, time and type (FITT) principle per ACSM protocol. (3)</strong></td>
<td>Group presents an accurate, concise, effective exercise prescription using FITT principle. (3)</td>
<td>Group presents exercise prescription with all elements (FITT principle) provided but with a few errors. (2)</td>
<td>Group fails to present an exercise prescription using all 4 elements of (FITT principle). (0-1)</td>
<td></td>
</tr>
<tr>
<td>Rationale and evidence. (3)</td>
<td>Group discusses rationale for exercise prescription using scientific evidence and understanding of patient case. (3)</td>
<td>Group discusses rationale for exercise prescription but lacks evidence and understanding of case. (2)</td>
<td>Group discusses rationale for exercise prescription with inaccuracy. (0-1)</td>
<td></td>
</tr>
<tr>
<td>Handouts (1)</td>
<td>Group provides typed summary of presentation with assigned case (1-2 pages) (1)</td>
<td>Group provides handout which lacks full summary of case presentation (5)</td>
<td>Group does not provide handout. (0).</td>
<td></td>
</tr>
</tbody>
</table>
CONTENT: (tentative)

Week 1: January 21, 23  Intro to course and syllabus, History of the Profession, Associations and Legal Aspects of Practice

Week 2: January 28, 30  ACSM CH. 1, ACSM CH. 1

Week 3: February 4, 6  SPARK discussion, QUIZ #1

Week 4: February 11, 13  ACSM CH. 2, ACSM CH. 2

Week 5: February 18 (NO CLASS), 20  SPARK discussion

Week 6: February 25, 27  Guest Speaker, QUIZ #2

Week 7: March 4, 6  ACSM CH. 3, ACSM CH. 3

Week 8: March 11, 13  SPARK discussion, EXAM (midterm)

Week 9: March 18, 20 (SPRING BREAK)

Week 10: March 25, 27  Review Midterm exam, Guest Speaker

Week 11: April 1, 3  ACSM CH. 7, ACSM CH. 7

Week 12: April 8, 10  Guest Speaker, QUIZ # 3

Week 13: April 15, 17  Student Presentations

Week 14: April 22, 24  Student Presentations

Week 15: April 29, May 1  QUIZ # 4, “wrap up”, Final review

Last Day of classes May 2nd

FINAL TBA

ACSM GUIDELINES CHAPTERS:
**Ch. 1 Benefits and Risks Associated with Physical Activity
**Ch. 2 Preparticipation in Health Screening
**Ch. 3 Preexercise Evaluation
**Ch. 7 General Principles of Exercise Prescription
Title: Junior Seminar 38.301

General Information:

A. Instructors:

Michele Fox, PT, DPT, MS, CSCS
Office: Weed 322A
Phone: 978-934-4766
Email: Michele_Fox@uml.edu
Office hours: Wednesday 1:00-2:30 pm
Thursday 10:30am-12:00 pm and by appointment.

Bryanna Hawkins, Teaching Assistant
Office: Weed 210
Email: Bryanna_Hawkins@student.uml.edu
Office hours: by appointment.

B. Course information:
Credit hours: 1
Class hours: 1 hour of lecture per week
Class day and time: Thursday @ 3:30 pm or 4:30 pm
Class location: Dugan 210

Library web page: http://libguides.uml.edu/content.php?pid=422571
Wiki page: http://38-412.wiki.uml.edu/

C. Course Purpose:
To assist exercise physiology students to prepare for the practicum experience in the senior year and to process the required forms required of practicum sites including CORI and health documentation form. This course is designed to be an introduction to the process of achieving entry-level competence as an exercise physiologist. This is best accomplished in applying the theory to practical clinical settings which are primarily in cardiac and pulmonary rehabilitation, strength and conditioning clinics, research centers, and wellness/fitness centers.

D. Course Description:
The Junior Seminar, offered spring semester to Exercise Physiology majors, will orient students to information required for their Practicum experience during their Senior Year. Pre-Req: EP majors; at least Junior status

E. Course Objectives:
To support the students in understanding that clinical education, their practicum experience, is meant to teach the process of thinking, feeling, and acting as a professional and as an exercise physiologist. As a result, students will be expected to explain and demonstrate competency in communicating and problem solving/decision making, gain an appreciation of professional behaviors and standards, and safety guidelines.
F. **Placement:**
Spring semester in the Junior Year.

G. **Evaluation Methods:**
   a. Attendance and participation – 15%
   b. Homework assignments – 65% (weekly class assignments, EKG exam, HIPAA certification, resume, completion of forms, etc.)
   c. Final paper – 20%

H. **Grading Policy:**
   
<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93-100</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>90-92</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>87-89</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>83-86</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>80-82</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>77-79</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>73-76</td>
<td>2.0</td>
</tr>
</tbody>
</table>

The instructor reserves the right to change a student’s final grade as **much as 5% (higher or lower)** based on class participation and professional behaviors.

I. **Attendance:**
   
   Attendance is **required at all classes.** Students should inform the instructor by email days that they will be absent due to sickness, family emergency, or religious holidays. This should be done as early as possible in the semester and always prior to the day(s) the student will be absent. **Absence from class will result in loss of 1 point per class missed.** Students who are observing a **religious holiday** are excused from class that day, but will be responsible for the work missed. Students must speak with the instructor before the scheduled class prior to an excused absence.

J. **Professional Behavior:**
   
   All students are advised that there is a university policy regarding dishonesty and cheating, and a department Honor Code. It is the students’ responsibility to familiarize themselves with these policies and to adhere to the Honor Code. University policies will be **strictly** enforced. These policies can be found at:
   
   [http://www.uml.edu/catalog/undergraduate/policies/academic_dishonesty.htm](http://www.uml.edu/catalog/undergraduate/policies/academic_dishonesty.htm)  If necessary, contact your advisor or instructor for clarification of these policies. Also for your convenience they are located in the section on Academic Dishonesty and Prohibited Academic Practice and Behavior in the EP Student Manual. The EP manual can be found online at the department’s web site.

   Exercise Physiologists are professionals. It is your responsibility to uphold the respect and dignity of your chosen profession.

K. **Student Policies**
   
   Students must follow the policies on social media, criminal background checks and drug screenings. Please visit the SHE Student Policies page:
   
   [http://www.uml.edu/SHE/Current-Students/Student-Policies.aspx](http://www.uml.edu/SHE/Current-Students/Student-Policies.aspx)

L. **Use of Technology in the Classroom:**
   
   All cell phones/pages must be turned **off** during class time. Personal phone calls, email or texting is not permitted during class. Laptops may be used for class work only. Students engaging in any activities other than class work will be asked to leave class.
M. Participation: Students are expected to fully participate in the class including discussions and assignments. Students must be prepared with class materials and have the days assignments completed.


O. Deadlines: Deadlines will be extended only in specific cases of illness, family emergency, or religious holiday. Faculty must be notified before the deadline that an assignment will be missing. Failure to notify the instructor as stated will result in a zero on an assignment.

P. Helpful websites:
   American Society of Exercise Physiologists (ASEP): http://www.asep.org/
   Clinical Exercise Physiology Association (CEPA): www.acsm-cepa.org
   National Strength and Conditioning Association (NSCA): www.nsca-lift.org
   UMass Lowell Career Services: http://www.uml.edu/student-services/career_services/default.html

Q. Important Dates to Remember

   See the wiki site for important dates/deadlines to remember http://38-412.wiki.uml.edu/

R. Special Accommodations:
   If a student needs special accommodations under the Americans with Disabilities Act in order to achieve the above course objectives and/or requirements, it is the student’s responsibility to contact the course instructor, in writing within one week of receiving this syllabus.
<table>
<thead>
<tr>
<th>Date</th>
<th>Class Discussion</th>
<th>Assignment Due</th>
</tr>
</thead>
</table>
| January 23rd | - Introduction to the class.  
- Review of the syllabus.  
- Discussion re: health documentation check list.  
- Review Wiki and library sites  
- Distribute semester selection form | • Sign up for Class WIKI  
• Bring your driver’s license to class.  
• Bring your EP manual to class- specifically pages 24-26 if you don’t have the full manual.  
*Note it is strongly suggested to bring the full manual to class.* |
| January 30th | - Practicum Guidelines  
  Review the practicum in manual pages 24-26  
- Review Career Services website  
- Complete CORI form  
- Distribute cell phone list. | • Semester Selection forms due. Be sure to include date of your physical exam  
• Read: Empathic Listening article found on the WIKI or library site. |
| February 6th | - Communication  
- Conflict resolution | |
| February 13th | - Cultural Awareness  
- Disability | • HIPAA and Standard Precautions training certification due. Forms must be printed and turned in at the start of class. Instructions can be found on WIKI site. *Completion will take several hours so plan in advance.* |
| February 20th | - Guest lecturer- TBD | • Review the website for guest lecturer  
• Begin developing your resume. |
| February 27th | - Motivation/Group Leadership  
Visitor: Art McDermott  
Matrix Strength &Fitness | • Review the Matrix website  
| March 6th    | - Guest lecturer- TBD | • Review the website for guest lecturer |
| March 13th   | - Guest lecturer- TBD | • EKG exam due  
• Review the website for guest lecturer |
| March 20th   | Spring Break | |
| March 27th   | - Strength & Conditioning | • Presentation/ role playing as assigned in class. |
| April 3rd    | - Fitness/ Research | • Presentation/ role playing as assigned in class  
*Must have paid for your name tag at the Bookstore before start of class.* |
| April 10th   | - Cardiac Rehab | • Presentation/ role playing as assigned in class  
• Review Blood Pressure |
<table>
<thead>
<tr>
<th>Date</th>
<th>Task</th>
<th>Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 17th</td>
<td>TBD</td>
<td>• Resume due.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Site Selection form for fall 2013 practicum group due. Attach a copy of fall schedule to form.</td>
</tr>
<tr>
<td>April 24th</td>
<td>Wrap up</td>
<td>• Final Paper due</td>
</tr>
<tr>
<td>May 1st</td>
<td>Fall group Site assignments week of April 28th- date/time/location TBD</td>
<td></td>
</tr>
</tbody>
</table>
I. COURSE INFORMATION

COURSE TITLE: Pharmacology
COURSE NUMBER: 38.356
INSTRUCTOR: Dan Kiel, Ph.D.
CONTACT: dan_kiel@uml.edu

II. COURSE DESCRIPTION

An introduction to the chemistry, biochemistry and physiological actions of various pharmaceuticals. Fundamental concepts will be stressed and will include a discussion of drug receptors, drug receptor interactions, pharmacokinetics, enzyme induction, drug metabolism, drug safety and effectiveness and idiosyncratic reactions. Several major groups of drugs will be studied including: central nervous system stimulants, hypnotics, narcotic analgesics, anti-inflammatory drugs, cholinergics, adrenergics, adrenergic blocking drugs, antihypertensives, antihistamines, diuretics, adrenal steroids, anti-anemic drugs and antibiotics. Prerequisite: 35.252.

III. COURSE OBJECTIVES

At the completion of this course, the student will be able to:

- Understand how drugs are developed, tested and approved.
- Discuss the similarities and differences between the structure, activation and effects of various types of receptors.
- Explain the role of G proteins and second messengers in receptor activation.
- Describe how drugs interact with biological targets and lead to altered physiological processes.
- Explain affinity, selectivity, bioavailability and therapeutic index of a drug.
- Generate and explain graded or quantal dose-response curves, and use these curves to determine drug potency, efficacy and selectivity.
- Discuss the effects of full agonists, partial agonists, inverse agonists, competitive and irreversible antagonists and use dose-response curves to differentiate between these ligands.
- Discuss the advantages and disadvantages of various routes of drug administration.
• Explain the processes of drug absorption, distribution, metabolism and elimination and factors influencing these processes
• Understand the anatomy, neurotransmission, receptors and functions of the autonomic and somatic nervous systems
• Describe the effects of activating or blocking certain receptors discussed in class.
• For the classes of drugs discussed in class or in the assigned reading, identify their major uses and effects.
• For the classes of drugs discussed in class or in the assigned reading, explain the mechanism of action of these drugs and relate it to the pathophysiology of the disease or condition they treat.

IV. GENERAL INFORMATION
Credit: 3 credits
Schedule: Mondays 5:00 – 7:50 p.m.
Attendance: Attendance at all classes is expected
Office hours: By appointment before or after class as needed.
Teaching methods: Lectures, class discussions, reading.
Evaluation methods: Examinations will be used to evaluate how well a student meets the objectives of the course. Exams may consist of multiple choice questions and/or open ended questions. Students are responsible for all material presented during class and in the assigned reading. Students are required to take each exam when scheduled. In fairness to all students, no questions are allowed to be asked during exams. Anyone missing an exam shall take a makeup exam on the day of the final exam immediately following the final exam.
Grading methods: There will be three 60-minute exams during the semester. The lowest of these three grades will constitute 20% of the final grade; the other two will each count for 25% of the final grade. The final exam, which contains previously unexamined material as well as a review of major points from the entire course, comprises 30% of the final grade.
Grading system: A 93-100
               A-  90-92
               B+  87-89
               B   83-86
               B-  80-82
               C+  77-79
               C   73-76
               C-  70-72
               D+  67-69
               D   60-66
               F  below 60

V. REQUIRED READING

Assigned as necessary.

VI. UNIVERSITY POLICY

All students are advised that there is a University policy regarding dishonesty, cheating and plagiarism. It is the students’ responsibility to familiarize themselves with these policies. If necessary, contact your advisors or instructors for clarification of these policies.

The instructor reserves the right to amend this syllabus or schedule as necessary.
VII. CLASS SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/27</td>
<td>Introduction to pharmacology</td>
</tr>
<tr>
<td></td>
<td>Drug-receptor interactions</td>
</tr>
<tr>
<td>2/3</td>
<td>Pharmacokinetics</td>
</tr>
<tr>
<td>2/10</td>
<td>Autonomic Nervous System</td>
</tr>
<tr>
<td></td>
<td>Cholinergic agonists &amp; antagonists</td>
</tr>
<tr>
<td>TUESDAY</td>
<td></td>
</tr>
<tr>
<td>2/18</td>
<td><strong>Exam 1</strong></td>
</tr>
<tr>
<td></td>
<td>Adrenergic agonists &amp; antagonists</td>
</tr>
<tr>
<td>2/24</td>
<td>Antihypertensives</td>
</tr>
<tr>
<td></td>
<td>Cardiovascular drugs</td>
</tr>
<tr>
<td>3/3</td>
<td>Drugs affecting blood clotting</td>
</tr>
<tr>
<td></td>
<td>Anti-hyperlipidemics</td>
</tr>
<tr>
<td>3/10</td>
<td><strong>Exam 2</strong></td>
</tr>
<tr>
<td></td>
<td>Antidiabetic drugs</td>
</tr>
<tr>
<td>3/24</td>
<td>Drugs to treat osteoporosis</td>
</tr>
<tr>
<td></td>
<td>Endocrine pharmacology</td>
</tr>
<tr>
<td>3/31</td>
<td>Anti-inflammatory drugs and analgesics</td>
</tr>
<tr>
<td>4/7</td>
<td><strong>Exam 3</strong></td>
</tr>
<tr>
<td></td>
<td>CNS pharmacology</td>
</tr>
<tr>
<td>4/14</td>
<td>CNS pharmacology</td>
</tr>
<tr>
<td></td>
<td>Treatment of neurodegenerative diseases</td>
</tr>
<tr>
<td>WEDNESDAY</td>
<td></td>
</tr>
<tr>
<td>4/23</td>
<td>Drugs affecting the GI tract</td>
</tr>
<tr>
<td>4/28</td>
<td>Selective toxicity</td>
</tr>
<tr>
<td>TBD</td>
<td><strong>Final Exam</strong></td>
</tr>
</tbody>
</table>
Title: Exercise Physiology II Lecture (38-406-101)
Tues and Thurs 12:00-1:50

Instructor: Dr. Cynthia Ferrara
Office: O’Leary 540M
Email: Cynthia_Ferrara@uml.edu
Office Hours: Tues 11-12, Thurs 10-12 or by appointment

Course Description:
This course is the second of a two part series in exercise physiology designed to study the physiological effects of exercise on the human body. It will call upon the knowledge gained in Anatomy and Physiology, Biochemistry, Kinesiology, and Exercise Physiology I. The course covers a variety of topics including, neuromuscular physiology, physiological adaptations to resistance and endurance training, environmental challenges to training, and various resistance training concepts and methods, and special topics. The course is designed to introduce the student to the principles of assessing functional strength, flexibility, endurance, and balance of various populations. This course will cover content that will aid the student in preparation for the National Strength and Conditioning Association’s (NSCA) Certified Strength and Conditioning Specialist (CSCS) exam or the American College of Sports Medicine’s Health and Fitness Specialist (HFS) exam.

Prerequisites: Anatomy and Physiology I & II with Lab
Physiological Chemistry I and II with lab
Kinesiology and lab
Exercise Physiology I and lab

Course Objectives:
1. Review neural adaptations that occur in response to resistance exercise.
2. Discuss the differences and presence of hypertrophy and hyperplasia.
3. Examine the role of the endocrine system during exercise.
4. Examine the science behind periodization and specificity of training.
5. Discuss different types of resistance training exercise and how to select appropriate exercises for clients.
6. Learn how to develop a safe and effective exercise program based on the needs of the client.
7. Examine the science behind flexibility training, plyometric training, and core training.
8. Discuss special populations, specifically the needs of the aging and appropriate exercise training for children/adolescents.
9. Utilize case studies to develop application skills.
Texts:

*Required*

EPI books:

Evaluation Methods:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>20%</td>
</tr>
<tr>
<td>Research article review</td>
<td>10%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>20%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam (comprehensive)</td>
<td>25%</td>
</tr>
</tbody>
</table>

In addition, the student is required to actively participate in classroom activities and assignments.

*Quizzes:*
There will be 4 quizzes during the semester. Quiz questions will be taken from readings and lecture material. Quizzes will be given in the first five to ten minutes of the class period. Class will immediately follow each quiz. Students who are late on the day of a quiz will have the remaining time to complete the quiz-no additional time will be given.

*Exams:*
Make-up examinations will be given only in specific cases of illness or death in the family (*appropriate documentation is required in order to receive a make-up exam*). If an exam is missed for an unexcused absence (i.e. non-documented absence) a zero will be given.
Grading Policy:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93-100</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>90-92</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>87-89</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>83-86</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>80-82</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>77-79</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>73-76</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>70-72</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>67-69</td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>63-66</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
<td>62 and below</td>
<td></td>
</tr>
</tbody>
</table>

The instructor reserves the right to change a student’s final grade as much as 5% (higher or lower) based on class participation, attendance (or lack of attendance), and professional behaviors.

All students are expected to attend class and be punctual. Students should expect the following reductions in their final grade based on absences or tardiness:

- Three unexcused absences: -3% points.
- Four to five absences: -5% points
- More than five absences: -7.5% points

- Three late arrivals: -1.5% points
- More than 3 late arrivals: -3% points
- More than 5 late arrivals: -5% points

Student Responsibilities

I. Attendance

All students are expected to attend class and be punctual. Students who are observing a religious holiday are excused from class that day, but will be responsible for the work missed. A written excuse must be submitted for each absence, in advance of the class meeting when possible.

It is expected that all students will demonstrate professional behavior toward the instructor and fellow students. On any given day if a student is disrespectful or disruptive to the instructor or the class and is asked by the instructor to leave, the student is not to return to the class until meeting with the instructor and academic advisor.

II. Cell phone /electronic device policy

While in class students are expected to have their cell phones, beepers and other noise producing gadgets and devices turned off. A ringing cell phone, buzzing beeper, or any other device making sounds that could disturb the normal conduct of the class may result in the deduction of points from the final grade. Answering a call or texting during class will result in an automatic “F” in the class.
III. Dishonesty Statement
All students are advised there is a University policy regarding dishonesty and cheating and a department honor code. It is the students’ responsibility to familiarize themselves with these policies. University policies will be strictly enforced. If necessary, contact the instructor or your advisor for clarification of these policies. Please check the Undergraduate Academic Integrity Policy if you have questions:
http://www.uml.edu/catalog/undergraduate/policies/academic_dishonesty.htm

IV. Special Accommodations
If you have or believe you have a disability (such as a learning disability, hearing impairment, etc), and you wish some modification of typical classroom instruction or testing, contact your advisor and the instructor within the first week of classes, so the necessary modifications can be made as soon as possible. If you are uncertain about the nature of the disability or appropriate strategies to accommodate that disability, please contact your advisor, the instructor, and the counseling center within the first week of classes for testing.

V. College of Health Sciences Social Media Policy
The College of Health Sciences recognizes that all involved in health care have a moral, ethical and legal responsibility to maintain individual’s rights to privacy. HIPAA protects patient privacy by law and includes any individually identifiable patient information in oral or recorded form where the information could identify an individual by name, medical condition, demographic data or other means. Students in the College of Health Sciences are expected to act with honesty, integrity and respect the privacy rights of others. All students are expected to meet their professional responsibilities when using social media and other electronic networks including but not limited to blogs, instant messaging, social networking sites, email, public media sites and photographs. This policy prohibits posting written material or photographs that identify patients, health care agencies, educational institutions or other students in clinical sites or patient related activities. This policy applies whether using University devices and computers or personal equipment. In addition, all College of Health Sciences students are required to abide by clinical agency policies related to the use of social media and technological resources. Failure to adhere to this policy may result in probation, suspension or dismissal from the College of Health Sciences and/or legal prosecution under the requirements of HIPAA.
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 21-23</td>
<td>Neural control of movement, Muscle, bone, connective tissue structure and function</td>
<td>Baechle Ch. 1, p. 75-79 Powers Ch 7-8</td>
</tr>
<tr>
<td></td>
<td>Bioenergetics of exercise and training</td>
<td>Baechle Ch 2 Powers Ch 3</td>
</tr>
<tr>
<td>Jan 28-30</td>
<td>Endocrine Responses to Resistance Exercise</td>
<td>Baechle Ch 3 Powers Ch 5</td>
</tr>
<tr>
<td></td>
<td><strong>Quiz 1 Thursday</strong></td>
<td></td>
</tr>
<tr>
<td>Feb 4-6</td>
<td>Adaptations to Anaerobic Training</td>
<td>Baechle Ch 5, Powers Ch 13</td>
</tr>
<tr>
<td></td>
<td>Adaptations to Aerobic Training, Compatibility of Anaerobic and Aerobic Training</td>
<td>Baechle Ch 6, Powers p.451</td>
</tr>
<tr>
<td>Feb 11-13</td>
<td>Cellular and gene-related adaptations to exercise</td>
<td>Available on Blackboard:</td>
</tr>
<tr>
<td></td>
<td><strong>Quiz 2 Thursday</strong></td>
<td>Ch 11, Genetics Primer (Roth) Ch 12, Exercise Biochemistry (Mougios)</td>
</tr>
<tr>
<td>Feb 18-20</td>
<td>Monday class schedule</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No class</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Exam 1</strong></td>
<td></td>
</tr>
<tr>
<td>Feb 25-27</td>
<td>Delayed onset muscle soreness</td>
<td>Powers p. 453-456</td>
</tr>
<tr>
<td>Mar 4-6</td>
<td>Age-related issues</td>
<td>Baechle Ch 7 Faigenbaum et al., 2009</td>
</tr>
<tr>
<td></td>
<td>Ergogenic Aids</td>
<td>Baechle Ch 9, Powers 25 Huffman et al., 2009</td>
</tr>
<tr>
<td>Mar 11-13</td>
<td>Nutrition and exercise</td>
<td>Baechle Ch. 9, 10, Powers Ch. 23 Sherman et al.</td>
</tr>
<tr>
<td></td>
<td><strong>Quiz 3 Thursday</strong></td>
<td></td>
</tr>
<tr>
<td>Mar 17th -21st</td>
<td>Spring Break</td>
<td></td>
</tr>
<tr>
<td>Mar 25-27</td>
<td>Testing administration</td>
<td>Baechle Ch 11, 13 MSSE #104 (on GSSI website)</td>
</tr>
<tr>
<td></td>
<td>Flexibility Techniques and Assessment</td>
<td>Ch 14-18</td>
</tr>
<tr>
<td></td>
<td>Resistance and Aerobic training</td>
<td></td>
</tr>
<tr>
<td>Apr 1-3</td>
<td>Periodization</td>
<td>Baechle Ch 19 Articles on website: Kraemer, 1997, Kraemer et al., 2000</td>
</tr>
<tr>
<td>Date</td>
<td>Topic</td>
<td>Notes</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Apr 8-10</td>
<td>Plyometrics</td>
<td>Exam II Thursday</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Baechle Ch 16</td>
</tr>
<tr>
<td>Apr 15-17</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>Apr 22-24</td>
<td>Environmental conditions</td>
<td>Readings to be announced</td>
</tr>
<tr>
<td></td>
<td>Special topics</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Review for final</td>
<td></td>
</tr>
</tbody>
</table>
Title: Exercise Physiology II Lab

Instructors:
   Michael Dellogono (Micheal_Dellogono@student.uml.edu)
   Lyra Clark (Lyra_Clark@student.uml.edu)
   Britt Kastraba (Britt_Kastraba@student.uml.edu)
   Office Hours: by appointment

Course Description:
This course should be taken concurrently with 38-406-101. This course is designed to provide students with an opportunity to apply the concepts discussed in EP II lecture.

Course Objectives:
1. Assess strength, flexibility, and body composition utilizing appropriate testing techniques.
2. Explore various training techniques (i.e. core training, stability training, plyometrics, agility and speed training, etc.)
3. Observe and participate in high-level resistance exercises.
4. Examine changes in various physiological variables during exercise.
5. Develop appropriate fitness programs based on fitness testing results and needs and goals of the client.

Text:
3. Adams and Beam (most recent edition). Exercise Physiology Laboratory Manual
4. Lab Handouts

You are responsible to bring necessary textbooks to lab. The instructor may take points away from your final grade if you do not come prepared for lab on a regular basis.
Evaluation:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab reports (total of 4, 10 pts each)</td>
<td>40%</td>
</tr>
<tr>
<td>Lab test</td>
<td>25%</td>
</tr>
<tr>
<td>Checklist</td>
<td>15%</td>
</tr>
<tr>
<td>Program Design Project</td>
<td>20%</td>
</tr>
</tbody>
</table>

**Evaluation of lab skills (checklist)**

Each student will need to become proficient in specific lab skills in order to pass the class. A checklist is included in the syllabus. Each student is responsible for keeping this form throughout the semester, and obtaining checks from the instructor with initials and dates. You must complete the checklist and turn it into your lab instructor or during lecture by lecture on Thursday, April 17th. Late checklists will lose one point for each day late. No checklists will be accepted after Thursday April 24th.

**Lab test**

There will be a written lab test during the final two weeks of the semester.

**Program Design Project:**

The program design project is intended to provide experience in designing a performance test session and an exercise program to meet the goals and needs of an athlete/client.

**Attendance and Participation:**

Students should arrive at each lab prepared for the day’s activities. This includes appropriate clothing and shoes, reading the lab activity prior to class, bringing the appropriate materials and/or textbook, and being ready to start lab on time. Each missed laboratory results in a final grade reduction of 3 points. Each late of greater than 15 minutes counts as a missed lab.

“Pre-labs” will be used to encourage students to be prepared for lab activities. The pre-lab will include an Introduction and Methods section, which can be prepared as an outline or in full paragraph form. The pre-lab must be turned in the DAY of the lab. If you arrive at class without a completed pre-lab report you will be given a zero for attendance that day and a final grade reduction of 3 points. Pre-labs are required even for “non-lab report” labs.

Students are expected to volunteer as a lab subject, actively participate in all activities (no cell phones or texting are permitted).
Grading Policy:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>93-100</td>
<td>4.0</td>
</tr>
<tr>
<td>A-</td>
<td>90-92</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>87-89</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>83-86</td>
<td>3.0</td>
</tr>
<tr>
<td>B-</td>
<td>80-82</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>77-79</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>73-76</td>
<td>2.0</td>
</tr>
<tr>
<td>C-</td>
<td>70-72</td>
<td>1.7</td>
</tr>
<tr>
<td>D+</td>
<td>67-69</td>
<td>1.3</td>
</tr>
<tr>
<td>D</td>
<td>63-66</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
<td>62 and below</td>
<td></td>
</tr>
</tbody>
</table>

Instructor has the option to alter a grade by up to 5% depending on student’s participation in class activities and professional behaviors.

Regarding Laboratories: Students are required to:

1. Attend all laboratory classes for the assigned times. (Each missed laboratory results in a final grade reduction of 3 points. Each late of greater than 15 minutes counts as a missed lab). Late assignments will be reduced by 20% for the first day, 40% the second day, and will not be accepted 3 or more days late. To avoid “technical” or “other” difficulties in complying with this requirement, it is recommended that you complete assignments earlier than the day they are due.
2. Prepare Introduction and Methods portions of lab report PRIOR to data collection for that lab. This “pre-lab” report can be prepared as an outline or in full paragraph form and must be turned in the DAY of the lab. If you arrive at class without a completed pre-lab report you will be given a zero for attendance that day. Pre-labs are required even for “non-lab report” labs.
3. Carefully follow directions for appropriate and safe use of all laboratory equipment and perform assigned tasks as requested by the faculty, teaching assistants, and laboratory staff.
4. Maintain an acceptable appearance and professional approach to all laboratory work.
5. Actively participate as subjects in exercise testing and training activities and wear appropriate attire.
6. Maintain the laboratory space and equipment in a safe, clean, and tidy condition. All equipment used must be cleaned and returned by students to the appropriate storage location after use.
7. Utilize supporting academic resources and references to supplement formal lecture and laboratory work.
8. Treat all volunteer subjects with respect and consideration during laboratory assessments.
9. Demonstrate initiative as the need arises and willingness to accept responsibility when requested.
10. Ask appropriate questions of the instructor and seek opportunities to gain further knowledge and understanding through required, recommended, and independent reading.
11. Develop skills in problem solving, leadership, and interpersonal relations during assigned group work.
12. Demonstrate acceptable professional standards of conduct in the laboratory at all times.

**Laboratory Reports**

Lab reports are intended to help students integrate the lecture and laboratory material, encourage reference to the appropriate background material (scientific literature), identify goals and objectives of data collection, communicate methods, and to develop skills in analyzing, summarizing, integrating and communicating data.

Lab reports should be a **maximum** of 8 typewritten pages in total using a scientific format. An appropriate computer word processor application must be used. Type should be no less than 10-point font and single-spaced. Margins should not be less than one inch.

Data collected for laboratory reports should be summarized in both table and/or graphical form, as appropriate. An appropriate computer program, such as Excel, SPSS or equivalent software program should be used.

Each Lab Report is worth up to 10 points toward the final laboratory grade and should be organized with headings for each section clearly delineated:

**Introduction – 2 points – (approximately 1 page)**

This section includes concise statements of the purpose of the lab experiment. WHAT and WHY this is being done needs to be answered here. When discussing the scientific and/or clinical purpose you should include appropriate and logically organized background information to “introduce” the following sections of methods, results and discussion. The introduction should follow with a summary statement of the expectations of this experiment, i.e. hypotheses. Students should use appropriate citations as needed.

**Methods – 2 Points – (approximately 1 page)**

WHAT data is being collected for the aforementioned purpose, and HOW is this data being collected and analyzed is being answered in the methods section. This section will include a description of the independent and dependent variables and how data will be analyzed. Independent variables will include exercise test protocol, mode, absolute intensity, duration, etc. Dependent variables will include measurements of response (ventilation, heart rate, blood pressure, symptoms, etc). How the data will be analyzed includes a brief summary of the approach – descriptive statistics (means, standard deviations, range, mode, medians), appropriate graphical analysis (line graphs, scatterplots), correlation (Pearson correlation, partial correlation, simple linear regression), and comparison of means (t test or ANOVA). Students are expected to understand why they are using a particular statistical method.
**Results - 2 points – (approximately 2 pages)**
Present in a clear, concise, logical manner the results obtained during the laboratory activity. Make sure that your statistical analyses agree with your results (if the statistical analysis indicates that the results are not different, then that should be stated in your results). The presentation will vary slightly based on what data was collected. At times results will be presented with collected lab data being all inclusive; and at other times collected data will be compared to expected data (from population sample statistics – i.e. compare results of a test with age, gender normative data).

**Discussion – 3.5 points - (approximately 2 pages)**
Interpret the results based on the purpose of collecting the data in the first place (from the introduction). Be clear, concise, and logical. The interpretation should address, in the scientific case, an interpretation of any statistical analysis conducted and possible random as well as systematic error and how this latter form of error may affect the results. Make sure that your interpretation includes not only the results of the statistical tests, but also (and more importantly) what do the results mean from an exercise physiology perspective. In the clinical case, you should interpret the results based on how the subject(s) compare with normal values, and possible sources of error that influence this interpretation.
An outstanding discussion (one that would be awarded full credit) will also include how the results of the lab activity compare to the results of published studies. Citations should be used, as appropriate.

**References – 0.5 points (approximately .5 page)**
References should be in APA (American Psychological Association) format. If you are uncertain as to this format, please check out the following tutorial (specifically citations and references sections).

http://flash1r.apa.org/apastyle/basics/index.htm?__utma=185732729.1671503558.1343759902.1343759902.1343759902.1343759902.1343759902.1&__utmb=185732729.2.10.1343759902&__utmc=185732729&__utmz=185732729.1343759902.1.1.utmcsr=(direct)|utmccn=(direct)|utmcmd=(none)&__utmv=&__utmkl=159462845

You will be expected to use APA format for all reference lists for the remainder of Exercise Physiology major courses. Please become familiar with the format and take the time to learn this format. You will lose points if you do not use the correct format for citations or references.

**Lab Report Tips**

Take notes in lab about purpose, method, data collected, etc.

Ask questions in lab to make sure you understand what you are doing, what is being collected, why it is being collected, etc.
Start working on the lab report the night following the lab experience. Start with an outline that includes all major sections and build from that outline. The process of writing the report is iterative and you will need to jump between sections so make sure you have an outline that anchors everything in an organized manner.

Avoid Grammatical Errors (including spelling)

Avoid going over the allotted maximum of 8 typewritten pages.

Avoid handwritten graphs, figures, keys, etc.

Avoid redundancy and flaws in logic

Make sure any raw data manipulations are explained (computations of new variables, making variables relative to something, etc.).

Tables and Figures should be referred to numerically in order of reference (i.e. Table 1, Table 2, Figure 1, Figure 2….).

Tables should be clearly labeled and present 2 decimal point accuracy when available.

Figures should be clear, appropriately labeled and scaled, and include appropriate components as discussed in lab (line of best fit, error bars, variables, etc.)

In the discussion be sure to demonstrate your knowledge and understanding of the data and how it integrates with what you are learning in class.
**Program Design Project**

The program design project is intended to provide experience in administering athletic performance tests and designing a resistance training program to meet the goals and needs of an athlete or client. Each student will be given a description of an athlete or client. The student must decide on four appropriate performance tests to administer prior to developing an exercise program, as well as the most appropriate testing sequence. Appropriate justification for the choice of tests as well as the order of tests in a testing session must be provided.

Each student must then design a preseason training program for an athlete or an appropriate exercise program for their client. Areas of emphasis for the evaluation of the program will include selection of appropriate program design variables for resistance training, aerobic, or other training variables (exercise selection, training frequency, exercise order, training load and repetitions, volume, and rest periods), and appropriate rationale for each selection.

Program design projects should be typed (12 point font), single spaced, and a maximum of 8 pages. A list of references should be included, using APA format.

**Due date**

**Part I. Selection of appropriate performance tests and test sequence, with appropriate justification (10 pt)**

**Part II. Completed program (10 pts)**

---

**Student Responsibilities**

**I. Attendance**

All students are expected to attend class and be punctual. Students who are observing a religious holiday are excused from class that day, but will be responsible for the work missed. A written excuse must be submitted for each absence, in advance of the class meeting when possible.

It is expected that all students will demonstrate professional behavior toward the instructor and fellow students. On any given day if a student is disrespectful or disruptive to the instructor or the class and is asked by the instructor to leave, the student is not to return to the class until meeting with the instructor and academic advisor.

**II. Cell phone /electronic device policy**

While in class students are expected to have their cell phones, beepers and other noise producing gadgets and devices turned off. A ringing cell phone, buzzing beeper, or any other device making sounds that could disturb the normal conduct of the class may result in the deduction of points from the final grade. Answering a call or texting during class is an automatic “F” in the class.

**III. Dishonesty Statement**

All students are advised there is a University policy regarding dishonesty and cheating and a department honor code. It is the students’ responsibility to familiarize themselves
with these policies. University policies will be strictly enforced. If necessary, contact the
instructor or your advisor for clarification of these policies.

IV. Special Accommodations
If you have or believe you have a disability (such as a learning disability, hearing
impairment, etc), and you wish some modification of typical classroom instruction or
testing, contact your advisor and the instructor within the first week of classes, so the
necessary modifications can be made as soon as possible. If you are uncertain about
the nature of the disability or appropriate strategies to accommodate that disability, please
contact your advisor, the instructor, and the counseling center within the first week of
classes for testing.

V. College of Health Sciences Social Media Policy
The College of Health Sciences recognizes that all involved in health care have a moral,
ethical and legal responsibility to maintain individual’s rights to privacy. HIPAA protects
patient privacy by law and includes any individually identifiable patient information in
oral or recorded form where the information could identify an individual by name,
medical condition, demographic data or other means. Students in the College of Health
Sciences are expected to act with honesty, integrity and respect the privacy rights of
others. All students are expected to meet their professional responsibilities when using
social media and other electronic networks including but not limited to blogs, instant
messaging, social networking sites, email, public media sites and photographs. This
policy prohibits posting written material or photographs that identify patients, health care
agencies, educational institutions or other students in clinical sites or patient related
activities. This policy applies whether using University devices and computers or
personal equipment. In addition, all College of Health Sciences students are required to
abide by clinical agency policies related to the use of social media and technological
resources.
Failure to adhere to this policy may result in probation, suspension or dismissal from the
College of Health Sciences and/or legal prosecution under the requirements of HIPAA.
Tentative lab schedule (subject to change)

<table>
<thead>
<tr>
<th>Week/Date</th>
<th>Lab Topic</th>
<th>Books for Lab</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 20th</td>
<td>No labs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jan 27th-Feb 1st</td>
<td>Functional Mobility Screen testing</td>
<td></td>
<td>Lab</td>
</tr>
<tr>
<td>Feb 3rd-8th</td>
<td>Flexibility testing (Lab Report I)</td>
<td>Adams and Beam, Ch 22, handouts</td>
<td>Lab</td>
</tr>
<tr>
<td>Feb 10th-15th</td>
<td>Resistance exercises and strength testing</td>
<td>Baechle Adams and Beam Ch 4, 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Lab Report II)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb 17th-22nd</td>
<td>No labs this week</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feb 24th-March 1st</td>
<td>Maximal muscle power and muscle endurance</td>
<td>Baechle and Adams and Beam Lab Manual, Ch 8</td>
<td>Lab</td>
</tr>
<tr>
<td></td>
<td>(lab report III)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lab Report III due</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar 3rd-8th</td>
<td>Anaerobic power (lab report IV)</td>
<td>Adams and Beam Lab Manual, Ch 9</td>
<td>Lab</td>
</tr>
<tr>
<td></td>
<td>Lab Report III due</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar 10th-15th</td>
<td>Speed and Agility Testing</td>
<td>Baechle</td>
<td>Lab</td>
</tr>
<tr>
<td></td>
<td>Lab Report IV due</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar 17th-22nd</td>
<td>Spring Break</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mar 24th-29th</td>
<td>Plyometrics and Core</td>
<td>Baechle</td>
<td>TBD</td>
</tr>
<tr>
<td>Mar 31st-5th</td>
<td>Power training</td>
<td>Baechle</td>
<td>TBD</td>
</tr>
<tr>
<td>Apr 7th-12th</td>
<td>No Labs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apr 14th-19th</td>
<td>No labs</td>
<td>Lab test during Thursday class (4/17)</td>
<td></td>
</tr>
<tr>
<td>Apr 21st-26th</td>
<td>No labs</td>
<td>Program design project due Thursday 4/24</td>
<td></td>
</tr>
</tbody>
</table>
Laboratory Skills Checklist

Name ____________________________________________________

Lab Section _________________  Instructor ____________________________

<table>
<thead>
<tr>
<th>Skill</th>
<th>Instructor Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain and administer at least one PNF technique to increase flexibility</td>
<td></td>
</tr>
<tr>
<td>Explain and administer a 1 RM or ?RM strength test (as appropriate) for a specific resistance exercise</td>
<td></td>
</tr>
<tr>
<td>Explain and demonstrate correct technique for an upper body and lower body resistance exercise</td>
<td></td>
</tr>
<tr>
<td>Measure heart rate and blood pressure before, during, and after an activity</td>
<td></td>
</tr>
<tr>
<td>Explain and demonstrate correct technique for an upper body and lower body plyometric activity</td>
<td></td>
</tr>
<tr>
<td>Explain, demonstrate, and administer correctly an appropriate agility test</td>
<td></td>
</tr>
<tr>
<td>Explain, demonstrate and administer correctly an appropriate FMS test</td>
<td></td>
</tr>
</tbody>
</table>

*The student is responsible for keeping this form throughout the semester and obtaining checks from the instructor with initials and dates.

Final Instructor Sign Off: ______________________________Date:_________
Advanced Study in Exercise Physiology

Course Number 38.420
Course Title Advanced Study in Exercise Physiology
Credits 3
Semester/Time A contingency syllabus proposed to be used in 2015 Spring
Faculty Yi-Ning Wu, PhD
Office Hours Tuesdays, Wednesdays, and Thursdays 11 am-noon
Office O’Leary Library, Room 540F
Phone/Email 978-934-6456 / yining_wu@uml.edu

Course Description:

This course is a capstone course in Exercise Physiology. Students summate and synthesize classroom and clinical experiences in Exercise Physiology in the preparation of a final project. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Course Objectives:

Upon completion of this course, the student will be able to:

1. Recognize and describe pathophysiology and risk factors of neuromuscular disorders.
2. Relate physiological mechanisms to the physical activity project that is developed.
3. Apply the concepts of the exercise prescription and health promotion to the design of an individualized training program or project that is population specific.
4. Design a project that is a comprehensive delivery of professional services concerned with the analysis, improvement, and maintenance of health and fitness.
5. Summarize the proposed project in a written format that reflects neurophysiological principles, biomechanical principles, kinesiological principles and appropriate use of medical terminology.
6. Identify and present the current needs of the health and fitness services for populations with motor impairment.
7. Produce a project which utilizes entry level skills of an exercise physiologist.
8. Formulate a final presentation that reflects the systematic planning of the project.
9. Present the final project using proper oral/written communication skills.
10. Prioritize time effectively to meet the self-determined action plan.
11. Revise the project as needed to adjust for unexpected circumstances.
12. Display motivation and self-initiation in the development of the project.
13. Appraise peer-projects and provide constructive criticisms based upon the learned knowledge of neuromuscular disorders and their impacts on the fitness condition.

General Information:

A. General Teaching Methods and Learning Experiences: Lectures, demonstrations, discussions, audiovisual materials, readings, handouts, examinations and group projects (written assignments and oral presentations).

B. Attendance: Attendance is mandatory. Students must notify faculty regarding absence prior to the start of the class in order for an absence to be an excused absence. Students should immediately notify the instructor about conflict between their religious observance and course due dates/examinations.
Unexcused absences will result in a reduction of final grade.  
http://www.uml.edu/Catalog/Undergraduate/Policies/Attendance-Policies.aspx

C. Evaluation Methods:

Mid-term Exam: 20 points

Mid-term written examination will include the materials covered in the lecture sessions before March 6th, 2014. The mid-term written examination will consist of multiple choices questions and open-ended questions.

Written assignments: 10 points

Each student will turn in a one-page report in the beginning of each lecture session. This report should reflect the learning objectives of each lecture session. Each student should also compose one question according to the knowledge learned in the lecture along with the corresponding answer.

<table>
<thead>
<tr>
<th>Grading items</th>
<th>Points</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear Objectives</td>
<td>4</td>
<td>Clear bullet points the objectives you learn from the lecture.</td>
</tr>
<tr>
<td>Conciseness</td>
<td>1</td>
<td>No more than one page.</td>
</tr>
<tr>
<td>Professional</td>
<td>1</td>
<td>Point will be deducted if there's any typo or inconsistent font size/type.</td>
</tr>
<tr>
<td>Title Format</td>
<td>1</td>
<td>Lecture title, student name and ID, instructor’s name.</td>
</tr>
<tr>
<td>On time or not</td>
<td>1</td>
<td>1 point will be deducted if you turn in the paper later than the deadline without an acceptable reason (Doctor’s note is required for sick absence.)</td>
</tr>
<tr>
<td>Question</td>
<td>2</td>
<td>Generate a question related to the objectives you learn from the lecture and provide the corresponding answer. It can be multiple choice or open ended question. An integrated fashion question earns 2 points while a direct answer question earns 1 point.</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Individual podium presentation and active participation & written report: 15 points & 15 points

Individual podium presentation includes two parts: the actual presentation and the active participation. Each podium presentation should be 3 minutes in length and should incorporate PowerPoint with appropriate illustration. Each presentation will be followed by 3 minutes Q&A.

Presentation (10 points) Each student will analyze the current status or needs of clinical exercise physiological service in his/her self-selected patient population. Each student will present his/her findings in the form of podium presentation.

10 points of the podium presentation will be graded by other students in the classroom according to the criteria listed below.

Grading guideline

- Slides- balance between words and pictures, easily to follow
  - 5 Strongly agree
  - 4 Agree
  - 3 I don’t know
  - 2 Disagree
  - 1 Strongly disagree
- Presentation- clearly address the problem and provide sufficient evidence
  - 5 Strongly agree
  - 4 Agree
  - 3 I don’t know
  - 2 Disagree
  - 1 Strongly disagree
Active participation (5 points) of students in Q&A is anticipated. You will earn one point for each question you ask (you can ask more than five questions to complement your slides/presentations scores. However the max scores for podium presentation will be still 15.)

In addition to Podium Presentation, each student should turn in a corresponding report (both electronic file and hardcopy) which will be due a week after his/her presentation. (See appendix for the individual report format)

Final group presentation & written report: 20 points & 20 points
About 10 topics of current needs will be selected from individual presentations. 3-4 students will then work as a team to propose a solution for one of the selected topics. The solution can be presented as a research proposal or as a service. Each presentation should be 15 minutes in length and should incorporate PowerPoint with appropriate illustration. Each presentation will be followed by 5 minutes Q&A. Active participation of students in Q&A is anticipated and counts for 5 points.

In addition to Podium Presentation, each team should turn in a corresponding report (both electronic file and hardcopy) which will be due on the same day of the podium presentation.

D. Grading Policy:

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>93 ≤ A ≤ 100</td>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>90 ≤ A- &lt; 93</td>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>87 ≤ B+ &lt; 90</td>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td>83 ≤ B &lt; 87</td>
<td>B</td>
<td>3.0</td>
</tr>
<tr>
<td>80 ≤ B- &lt; 83</td>
<td>B-</td>
<td>2.7</td>
</tr>
<tr>
<td>77 ≤ C+ &lt; 80</td>
<td>C+</td>
<td>2.3</td>
</tr>
<tr>
<td>73 ≤ C &lt; 77</td>
<td>C</td>
<td>2.0</td>
</tr>
<tr>
<td>70 ≤ C- &lt; 73</td>
<td>C-</td>
<td>1.7</td>
</tr>
<tr>
<td>67 ≤ D+ &lt; 70</td>
<td>D+</td>
<td>1.3</td>
</tr>
<tr>
<td>63 ≤ D &lt; 67</td>
<td>D</td>
<td>1.0</td>
</tr>
<tr>
<td>60 ≤ D- &lt; 63</td>
<td>D-</td>
<td></td>
</tr>
<tr>
<td>0 ≤ F &lt; 60</td>
<td>F</td>
<td>0.0</td>
</tr>
</tbody>
</table>

The instructor reserves the right to change a student’s final grade as much as 10% (higher OR lower) based on the instructor’s evaluation of the student’s professional behavior.

E. Academic Integrity Policy
All students are advised there is a University policy regarding academic integrity. It is the students’ responsibility to familiarize themselves with these policies. University policies will be strictly enforced. If necessary, contact your advisor regarding these policies. (http://www.uml.edu/Catalog/Undergraduate/Policies/Academic-Integrity.aspx)

F. Cell Phones and Other Devices
All students should turn off or mute cell phones, beepers, and other electronics devices during class except for permission of taking class notes. During exams there will be no cell phones or other electronic devices allowed.

G. Student Disability Services
For detailed information contact: Office of the Student Disability Services, University Crossing #200, Ph. 978-934-4574 (http://www.uml.edu/student-services/Disability/default.aspx)

H. Service for Learning
For detailed information contact: Division of Students Affairs, University Crossing #200. Ph. 978-934-2100 (http://www.uml.edu/STUDENT-SERVICES/)
I. Credit Hour Policy
   Federal definition of a credit hour requires that for every course credit awarded, a course must offer 15 hours of instructor led course activities and 30 hours of out-of-class student work. (http://www.uml.edu/Catalog/Undergraduate/Policies/Academic-Policies.aspx)

J. Student Responsibilities
   All students are expected at attend class and be punctual. It is expected that all students will demonstrate professional behavior at all times. Students are expected to adhere to departmental/institutional policies. On any given day if a student is disrespectful or disruptive and is asked by the instructor to leave, the student is not to return to the class until meeting with the instructor and academic advisor.

K. Special Accommodations
   If a student needs special accommodations under the Americans with Disabilities Act in order to achieve course objectives and/or requirements, it is the student’s responsibility to contact the faculty advisor and provide documentation from the Office of Disability Services within two weeks of receiving this syllabus.

Course Requirements:
   A. Successful completion of the exam, podium presentations and written assignments.
   B. Completion of assigned readings prior to class lecture/discussion.
   C. Class attendance and active participation in class in a professional manner.

Required Text:
## Course Outline & Class Schedule:

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic and Readings</th>
</tr>
</thead>
</table>
| Week 1 | Intro to course and syllabus/ Evolution of the Clinical Exercise Physiologist (Chapter 20)  
Overview of Neuromuscular System and Movement Control |
| Week 2 | Stroke (Chapter 1)  
Stroke (Chapter 1) |
| Week 3 | Traumatic Brain Injury (Chapter 9)  
Cerebral Palsy (Chapter 2) |
| Week 4 | Down’s syndrome  
Muscular Dystrophy and Other myopathies (Chapter 7) |
| Week 5 | Muscular Dystrophy and Other myopathies-cont. (Chapter 7)  
Peripheral neuropathy (Chapter 8)  
Monday Class schedule- no Tuesday class |
| Week 6 | Spinal cord dysfunction (Chapter 5)  
Spinal cord dysfunction-cont. (Chapter 5) |
| Week 7 | Postpolio and Guillain-Barre syndrome (Chapter 6)  
**Mid-term examination** |
| Week 8 | Multiple sclerosis (Chapter 3)  
Parkinson’s disease (Chapter 4) |
| Week 9 | Spring break (no class)  
Spring break (no class) |
| Week 10 | Individual podium presentations  
Individual podium presentations |
| Week 11 | Group discussion  
Group discussion |
| Week 12 | Group discussion  
Group discussion |
| Week 13 | Invited speaker: TBA  
Invited speaker: TBA |
| Week 14 | Final project presentation  
Final project presentation |
| Week 15 | Final project presentation  
Final project presentation & Final project written report due |
Appendix A. Individual project written report format

Name of student: 
Student ID: 

**Title (12 Arial, Bold, Center)**

3 points. Clear title (do not exceed 81 characters)

A. Overview of XXXX
   2 points
   Concise description of the selected patient population, including incidence, prevalence, clinical complications etc.

B. Major concerns/challenges of XXXX
   2 points
   Address the major concerns/complications/challenges of XXXX you find it is important.
   Justification of the importance you addressed

C. Current services/Literature review
   3 points
   Based on your evidence searching, discussion of current available but not optimal or currently insufficient knowledge/service need to be addressed

D. Summary
   2 points
   Sum up all of your findings which lead to the proposed topic in one short paragraph. (Why do you select this topic? Based on what evidence?) No more than 5 sentences.

E. References
   1 point
   At least five references

F. Q&A

Additional format requirement (1 point)
(1) Font size: 11 Arial
(2) Line spacing: single space
(3) Paragraph spacing: 12 pt
(4) Margins: 1” on each side
(5) Add page number on each page if there are multiple pages
(6) Staple the document if there are multiple pages

Overall effort (1 point): turn in the report on time, no typos or errors found and citation when it’s proper
Appendix C: CoASE Job Task Analysis Table
## INSTITUTIONAL JTA MATCHING FORM

**Exercise Sciences**

### Performance Domains and Associated Job Tasks

<table>
<thead>
<tr>
<th>Performance Domains and Associated Job Tasks</th>
<th>Course prefix, number and name</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DOMAIN I: HEALTH AND FITNESS ASSESSMENT</strong></td>
<td>Example Course Title: MOV 304 Physiology of Activity</td>
</tr>
<tr>
<td><strong>A. Implement assessment protocols and preparticipation health screening procedures to maximize participant safety and minimize risk.</strong></td>
<td></td>
</tr>
<tr>
<td>I.A.1.a Knowledge of pre-activity screening procedures and tools that provide accurate information about the individual’s health/medical history, current medical conditions, risk factors, sign/symptoms of disease, current physical activity habits, and medications.</td>
<td>38.202 Intro to EP Exercise Physiology I Lab 38.307</td>
</tr>
<tr>
<td>I.A.1.b Knowledge of the key components included in informed consent and health/medical history.</td>
<td>Intro to EP 38.202 Research Methods 38.417 Exercise Physiology I Lab 38.307</td>
</tr>
<tr>
<td>I.A.1.c Knowledge of the limitations of informed consent and health/medical history.</td>
<td>Intro to EP 38.202 Research Methods 38.417 Exercise Physiology I Lab 38.307</td>
</tr>
<tr>
<td><strong>DOMAIN I: HEALTH AND FITNESS ASSESSMENT</strong></td>
<td></td>
</tr>
<tr>
<td><strong>B. Determine participant’s readiness to take part in a health-related physical fitness assessment and exercise program.</strong></td>
<td></td>
</tr>
<tr>
<td>I.B.1.a Knowledge of risk factor thresholds for ACSM risk stratification including genetic and lifestyle factors related to the development of CVD.</td>
<td>Intro to EP 38.202 Exercise Physiology I Lab 38.307</td>
</tr>
<tr>
<td>I.B.1.c Knowledge of cardiovascular risk factors or conditions that may require consultation with medical personnel prior to exercise testing or training (e.g., inappropriate changes in resting heart rate and/or blood pressure, new onset discomfort in chest, neck, shoulder, or arm, changes in the pattern of discomfort during rest or exercise, fainting, dizzy spells, claudication).</td>
<td>Intro to EP 38.202 Exercise Physiology I 38.305</td>
</tr>
<tr>
<td>I.B.1.d Knowledge of the pulmonary risk factors or conditions than may require consultation with medical personnel prior to exercise testing or training (e.g., asthma, exercise-induced asthma/bronchospasm, extreme breathlessness at rest or during exercise, chronic bronchitis, emphysema).</td>
<td>Intro to EP 38.202 Exercise Physiology I 38.305</td>
</tr>
<tr>
<td>I.B.1.e Knowledge of the metabolic risk factors or conditions than may require consultation with medical personnel prior to exercise testing or training (e.g., obesity, metabolic syndrome, diabetes or glucose intolerance, hypoglycemia).</td>
<td>Intro to EP 38.202 EP2 38.406 Exercise Physiology I Lab 38.307</td>
</tr>
<tr>
<td>I.B.1.f Knowledge of the musculoskeletal risk factors or conditions than may require consultation with medical personnel prior to exercise testing or training (e.g., acute or chronic pain, osteoarthritis, rheumatoid arthritis, osteoporosis, inflammation/pain, low back pain).</td>
<td>Intro to EP 38.202 Exercise Physiology I Lab 38.307</td>
</tr>
<tr>
<td>I.B.1.g</td>
<td>Knowledge of ACSM risk stratification categories and their implications for medical clearance before administration of an exercise test or participation in an exercise program.</td>
</tr>
<tr>
<td>I.B.1.h</td>
<td>Knowledge of risk factors that may be favorably modified by physical activity habits.</td>
</tr>
<tr>
<td>I.B.1.i</td>
<td>Knowledge of medical terminology including, but not limited to, total cholesterol (TC), high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), triglycerides, impaired fasting glucose, impaired glucose tolerance, hypertension, atherosclerosis, myocardial infarction, dyspnea, tachycardia, claudication, syncope and ischemia.</td>
</tr>
<tr>
<td>I.B.1.k</td>
<td>Knowledge of recommended blood pressure levels for adults based on National High Blood Pressure Education Program Guidelines.</td>
</tr>
<tr>
<td>I.B.1.l</td>
<td>Knowledge of medical supervision recommendations for cardiorespiratory fitness testing.</td>
</tr>
<tr>
<td>I.B.1.m</td>
<td>Knowledge of the components of a health-history questionnaire (e.g., past and current medical history, family history of cardiac disease, orthopedic limitations, prescribed medications, activity patterns, nutritional habits, stress and anxiety levels, and smoking and alcohol use).</td>
</tr>
<tr>
<td>I.B.2.a</td>
<td>Skill in the risk stratification of participants using CVD risk factor thresholds, major signs or symptoms suggestive of cardiovascular, pulmonary, or metabolic disease, and/or the presence of known cardiovascular, pulmonary, and metabolic disease status.</td>
</tr>
<tr>
<td>I.B.2.b</td>
<td>Skill in reviewing pre-activity screening documents to determine the need for medical clearance prior to exercise and to select appropriate physical fitness assessment protocols.</td>
</tr>
</tbody>
</table>

**DOMAIN I: HEALTH AND FITNESS ASSESSMENT**

C. Select and prepare physical fitness assessments for healthy participants and those with controlled disease.

| I.C.1.a | Knowledge of the physiological basis of the major components of physical fitness: cardiorespiratory fitness, body composition, flexibility, muscular strength, and muscular endurance. | 38.315 Kinesiology EP 2 38.406 Exercise Physiology I 38.305 |
| I.C.1.b | Knowledge of selecting the most appropriate testing protocols for each participant based on preliminary screening data. | Exercise Physiology I Lab 38.307 |
| I.C.1.c | Knowledge of calibration techniques and proper use of fitness testing equipment. | EP 2 lab 38.408 Exercise Physiology I Lab 38.307 |
| I.C.1.d | Knowledge of the purpose and procedures of fitness testing protocols for the components of health related fitness. | EP 2 lab 38.408 Exercise Physiology I Lab 38.307 EP 38.420 Adv Study |
| I.C.1.e | Knowledge of test termination criteria and proper procedures to be followed after discontinuing health fitness tests. | EP 2 lab 38.408 Exercise Physiology I Lab 38.307 |
| I.C.1.f | Knowledge of fitness assessment sequencing. | EP 2 lab 38.408 Exercise Physiology I Lab 38.307 |
| I.C.1.g | Knowledge of the effects of common medications and substances on exercise testing (e.g., antianginals, antihypertensives, antiarrhythmics, bronchodilators, hypoglycemics, psychotropics, alcohol, diet pills, cold tablets, caffeine, nicotine). | EP 2 38.406 Pharm 38.356 |
| I.C.1.h | Knowledge of the physiologic and metabolic responses to exercise testing associated with chronic diseases and conditions (e.g., heart disease, hypertension, diabetes mellitus, obesity, pulmonary disease). | EP 2 38.406 Exercise Physiology I 38.305 |
| I.C.2.a | Skill in analyzing and interpreting information obtained from assessment of the components of health related fitness. | Exercise Physiology I Lab 38.307 EP2 lab 38.408 |
| I.C.2.b | Skill in modifying protocols and procedures for testing children, adolescents, older adults and individuals with special considerations. | EP2 38.406 EP 38.420 Adv Study |

**DOMAIN I: HEALTH AND FITNESS ASSESSMENT**

D. Conduct and interpret cardiorespiratory fitness assessments.

| I.D.1.a | Knowledge of common submaximal and maximal cardiorespiratory fitness assessment protocols. | Exercise Physiology I 38.305 |
| I.D.1.b | Knowledge of blood pressure measurement techniques. | Exercise Physiology I Lab 38.307 |
| I.D.1.c | Knowledge of Korotkoff sounds for determining systolic and diastolic blood pressure. | Exercise Physiology I Lab 38.307 |
| I.D.1.e | Knowledge of techniques of measuring heart rate and heart rate response to exercise. | EP 38.406 Exercise Physiology I Lab 38.307 |
| I.D.1.f | Knowledge of the rating of perceived exertion (RPE). | Exercise Physiology I Lab 38.307 |
| I.D.1.g | Knowledge of heart rate, blood pressure and RPE monitoring techniques before, during, and after cardiorespiratory fitness testing. | Exercise Physiology I Lab 38.307 |
| I.D.1.h | Knowledge of the anatomy and physiology of the cardiovascular and pulmonary systems. | Exercise Physiology I 38.305 |
| I.D.1.i | Knowledge of cardiorespiratory terminology including angina pectoris, tachycardia, bradycardia, arrhythmia, and hyperventilation. | Exercise Physiology I 38.305 |
| I.D.1.j | Knowledge of the pathophysiology of myocardial ischemia, myocardial infarction, stroke, hypertension, and hyperlipidemia. | Exercise Physiology I 38.305 |
| I.D.1.k | Knowledge of the effects of myocardial ischemia, myocardial infarction, hypertension, claudication, and dyspnea on cardiorespiratory responses during exercise. | Exercise Physiology I 38.305 |
| I.D.1.l | Knowledge of oxygen consumption dynamics during exercise (e.g., heart rate, stroke volume, cardiac output, ventilation, ventilatory threshold). | Ep2 38.406 Exercise Physiology I Lab 38.307 Exercise Physiology I 38.305 |
| I.D.1.m | Knowledge of methods of calculating VO_{2max}. | Exercise Physiology I Lab 38.307 Exercise Physiology I 38.305 |
| I.D.1.n | Knowledge of cardiorespiratory responses to acute graded exercise of conditioned and unconditioned participants. | EP 38.406 Exercise Physiology I 38.305 |
| I.D.2.a | Skill in interpreting cardiorespiratory fitness test results. | Exercise Physiology I Lab 38.307 |
| I.D.2.b | Skill in locating anatomic landmarks for palpation of peripheral pulses and blood pressure. | Exercise Physiology I Lab 38.307 |
| I.D.2.c | Skill in measuring heart rate, blood pressure, and RPE at rest and during exercise. | Exercise Physiology I Lab 38.307 |
| I.D.2.d | Skill in conducting submaximal exercise tests (e.g., cycle ergometer, treadmill, field testing, step test). | Exercise Physiology I Lab 38.307 |
| I.D.2.e | Skill in determining cardiorespiratory fitness based on submaximal exercise test results. | Exercise Physiology I Lab 38.307 |

**APPENDIX C**
| I.E.1.d | Knowledge of the anatomy of bone, skeletal muscle, and connective tissues. | 38.315 Kinesiology  
38. 317 Kines Lab  
Exercise Physiology I 38.305 |
| I.E.1.e | Knowledge muscle action terms including anterior, posterior, inferior, superior, medial, lateral, supination, pronation, flexion, extension, adduction, abduction, hyperextension, rotation, circumduction, agonist, antagonist, and stabilizer. | 38.315 Kinesiology  
38.317 Kines Lab |
| I.E.1.f | Knowledge of the planes and axes in which each movement action occurs. | 38.315 Kinesiology  
38.317 Kines Lab |
| I.E.1.g | Knowledge of the interrelationships among center of gravity, base of support, balance, stability, posture, and proper spinal alignment. | 38.315 Kinesiology  
38.317 Kines Lab |
| I.E.1.h | Knowledge of the normal curvatures of the spine and common assessments of postural alignment. | 38.315 Kinesiology  
38.317 Kines Lab |
| I.E.1.i | Knowledge of the location and function of the major muscles (e.g., pectoralis major, trapezius, latissimus dorsi, biceps, triceps, rectus abdominus, internal and external obliques, erector spinae, gluteus maximus, quadriceps, hamstrings, adductors, abductors, and gastrocnemius). | 38.315 Kinesiology  
38.317 Kines Lab |
| I.E.1.j | Knowledge of the major joints and their associated movement. | 38.315 Kinesiology  
38.317 Kines Lab |
| I.E.2.a | Skill in identifying the major bones, muscles, and joints. | 38.315 Kinesiology  
38.317 Kines Lab |
| I.E.2.b | Skill in conducting assessments of muscular strength, muscular endurance and flexibility (e.g., 1-RM, hand grip dynamometer, push-ups, curl-ups, sit-and-reach). | 38.315 Kinesiology  
Ep2 lab 38.408 |
| I.E.2.c | Skill in estimating 1-RM using lower resistance (2-10 RM). | Ep2 lab 38.408 |
| I.E.2.d | Skill in interpreting results of muscular strength, muscular endurance and flexibility assessments. | Ep2 lab 38.408  
38.317 KinesLab |

**DOMAIN I: HEALTH AND FITNESS ASSESSMENT**

**F. Conduct anthropometric and body composition assessments.**

| I.F.1.a | Knowledge of the advantages, disadvantages and limitations of body composition techniques (e.g., air displacement plethysmography (BOD POD®), dual-energy x-ray absorptiometry (DEXA), hydrostatic weighing, skinfolds, and bioelectrical impedance. | EP2 38.406  
Exercise Physiology I Lab 38.307 |
| I.F.1.b | Knowledge of the standardized descriptions of circumference and skinfold sites. | EP2 38.406  
Exercise Physiology I Lab 38.307 |
| I.F.1.c | Knowledge of procedures for determining BMI and taking skinfold and circumference measurements. | Ep2 38.406  
Exercise Physiology I Lab 38.307 |
Exercise Physiology I Lab 38.307 |
| I.F.2.a | Skill in locating anatomic landmarks for skinfold and circumference measurements. | EP2 38.406  
Exercise Physiology I Lab 38.307 |
| I.F.2.b | Skill in interpreting the results of anthropometric and body composition assessments. | Ep2 38.406  
Exercise Physiology I Lab 38.307 |

**Domain II: Exercise Prescription and Implementation**

**A. Review preparticipation health screening including self-guided health questionnaires and appraisals, exercise history and fitness assessments**

| II.A.1.a | Skill in synthesizing pre-screening results and reviewing them with participants | EP2 lab 38.408  
Exercise Physiology I Lab 38.307 |

**Domain II: Exercise Prescription and Implementation**

**B. Determine safe and effective exercise programs to achieve desired outcomes and goals.**
<table>
<thead>
<tr>
<th>II.B.1.a</th>
<th>Knowledge of strength, aerobic, and flexibility based exercise.</th>
<th>38422 Exercise Prescription EP2 38.406 Exercise Physiology I Lab 38.307</th>
</tr>
</thead>
<tbody>
<tr>
<td>II.B.1.b</td>
<td>Knowledge of the benefits and precautions associated with exercise training in apparently healthy participants and those with controlled disease.</td>
<td>38422 Exercise Prescription EP2 38.406 Exercise Physiology I 38.305</td>
</tr>
<tr>
<td>II.B.1.c</td>
<td>Knowledge of program development for specific client needs (e.g., sport specific training, performance, health, lifestyle, functional ability, balance, agility, aerobic, anaerobic).</td>
<td>38422 Exercise Prescription EP2 38.406</td>
</tr>
<tr>
<td>II.B.1.d</td>
<td>Knowledge of the six motor skill related physical fitness components: agility, balance, coordination, reaction time, speed, and power.</td>
<td>38422 Exercise Prescription EP2 38.406</td>
</tr>
<tr>
<td>II.B.1.e</td>
<td>Knowledge of the physiologic changes associated with an acute bout of exercise.</td>
<td>38422 Exercise Prescription EP2 38.406 Exercise Physiology I Lab 38.307 Exercise Physiology I 38.305</td>
</tr>
<tr>
<td>II.B.1.f</td>
<td>Knowledge of the physiologic adaptations following chronic exercise training.</td>
<td>38422 Exercise Prescription EP2 38.406 Exercise Physiology I Lab 38.307 Exercise Physiology I 38.305</td>
</tr>
<tr>
<td>II.B.1.g</td>
<td>Knowledge of ACSM exercise prescription guidelines for strength, aerobic, and flexibility based exercise for apparently healthy clients, clients with increased risk, and clients with controlled disease.</td>
<td>38422 Exercise Prescription Exercise Physiology I Lab 38.307</td>
</tr>
<tr>
<td>II.B.1.h</td>
<td>Knowledge of the components and sequencing incorporated into an exercise session (e.g., warm-up, stretching, conditioning or sports related exercise, cool-down).</td>
<td>38422 Exercise Prescription EP2 38.406 Exercise Physiology I Lab 38.307</td>
</tr>
<tr>
<td>II.B.1.i</td>
<td>Knowledge of the physiological principles related to warm-up and cool-down.</td>
<td>38422 Exercise Prescription EP2 38.406 Exercise Physiology I Lab 38.307 Exercise Physiology I 38.305</td>
</tr>
<tr>
<td>II.B.1.j</td>
<td>Knowledge of the principles of reversibility, progressive overload, individual differences and specificity of training, and how they relate to exercise prescription.</td>
<td>38.315 Kinesiology 38422 Exercise Prescription EP2 38.406 Exercise Physiology I Lab 38.307 Exercise Physiology I 38.305</td>
</tr>
<tr>
<td>II.B.1.k</td>
<td>Knowledge the role of aerobic and anaerobic energy systems in the performance of various physical activities.</td>
<td>38422 Exercise Prescription EP2 38.406 Exercise Physiology I Lab 38.307 Exercise Physiology I 38.305</td>
</tr>
<tr>
<td>II.B.1.l</td>
<td>Knowledge of the basic biomechanical principles of human movement.</td>
<td>38.315 Kinesiology 38.317 Kines Lab 38422 Exercise Prescription</td>
</tr>
<tr>
<td>II.B.1.m</td>
<td>Knowledge of the psychological and physiological signs and symptoms of overtraining.</td>
<td>38422 Exercise Prescription EP2 38.406 Exercise Physiology I 38.305</td>
</tr>
<tr>
<td>II.B.1.n</td>
<td>Knowledge of the signs and symptoms of common musculoskeletal injuries associated with exercise (e.g., sprain, strain, bursitis, tendinitis).</td>
<td>38.315 Kinesiology 38422 Exercise Prescription</td>
</tr>
</tbody>
</table>
| II.B.1.o | Knowledge of the advantages and disadvantages of exercise equipment (e.g., free weights, selectorized machines, aerobic equipment.) | 38.315 Kinesiology  
38422 Exercise Prescription  
EP2 38.406  
Exercise Physiology I 38.305 |
| II.B.2.a | Skill in teaching and demonstrating exercises. | 38.315 Kinesiology  
38422 Exercise Prescription  
38.408 EP2 |
| II.B.2.b | Skill in designing safe and effective training programs. | 38.315 Kinesiology  
38422 Exercise Prescription  
38.408 EP2 lab |
| II.B.2.c | Skill in implementing exercise prescription guidelines for apparently healthy clients, clients with increased risk, and clients with controlled disease. | 38422 Exercise Prescription |
| II.C.1.a | Knowledge of the recommended FITT framework for the development of cardiorespiratory fitness. | 38422 Exercise Prescription  
Exercise Physiology I 38.305 |
| II.C.1.b | Knowledge of the benefits, risks and contraindications of a wide variety of cardiovascular training exercises based on client experience, skill level, current fitness level and goals. | 38422 Exercise Prescription  
EP2 38.406  
Exercise Physiology I 38.305  
Intro to EP 38.202 |
| II.C.1.c | Knowledge of the minimal threshold of physical activity required for health benefits and/or fitness development. | 38422 Exercise Prescription  
EP2 38.406  
Exercise Physiology I 38.305 |
| II.C.1.d | Knowledge of determining exercise intensity using HRR, VO2R, peak HR method, peak VO2 method, peak METs method, and the RPE Scale. | 38422 Exercise Prescription  
Exercise Physiology I 38.305 |
| II.C.1.e | Knowledge of the accuracy of HRR, VO2R, peak HR method, peak VO2 method, peak METs method, and the RPE Scale. | 38422 Exercise Prescription  
Exercise Physiology I Lab 38.307 |
| II.C.1.f | Knowledge of abnormal responses to exercise (e.g., hemodynamic, cardiac, ventilatory). | 38422 Exercise Prescription  
EP2 38.406  
Exercise Physiology I Lab 38.307  
Exercise Physiology I 38.305 |
| II.C.1.g | Knowledge of metabolic calculations (e.g., unit conversions, deriving energy cost of exercise, caloric expenditure). | 38422 Exercise Prescription  
Exercise Physiology I Lab 38.307  
Exercise Physiology I 38.305 |
| II.C.1.h | Knowledge of calculating the caloric expenditure of an exercise session (kcal-session\(^2\)). | 38422 Exercise Prescription  
Exercise Physiology I 38.305 |
| II.C.1.i | Knowledge of methods for establishing and monitoring levels of exercise intensity, including heart rate, RPE, and METs. | 38422 Exercise Prescription  
Exercise Physiology I Lab 38.307 |
| II.C.1.j | Knowledge of the applications of anaerobic training principles. | 38422 Exercise Prescription  
EP2 38.406  
Exercise Physiology I 38.305 |
| II.C.1.k | Knowledge of the anatomy and physiology of the cardiovascular and pulmonary systems including the basic properties of cardiac muscle. | 38422 Exercise Prescription  
Exercise Physiology I 38.305 |
| II.C.1.l | Knowledge of the basic principles of gas exchange. | 38422 Exercise Prescription  
Exercise Physiology I 38.305 |
| II.C.2.a | Skill in determining appropriate exercise frequency, intensity, time and type for clients with various fitness levels. | 38422 Exercise Prescription |
| II.C.2.b | Skill in determining the energy cost, absolute and relative oxygen costs (VO₂), and MET levels of various activities and applying the information to an exercise prescription. | 38422 Exercise Prescription Exercise Physiology I 38.305 |
| II.C.2.c | Skill in identifying improper technique in the use of cardiovascular equipment. | Exercise Physiology I Lab 38.307 |
| II.C.2.d | Skill in teaching and demonstrating the use of a variety of cardiovascular exercise equipment. | Exercise Physiology I Lab 38.307 |

**Domain II: Exercise Prescription and Implementation**

**D. Implement exercise prescriptions using the FITT principle (frequency, intensity, time, and type) for flexibility, muscular strength, and muscular endurance for apparently healthy participants based on current health status, fitness goals and availability of time.**

| II.D.1.a | Knowledge of the recommended FITT framework for the development of muscular strength, muscular endurance and flexibility. | Intro to EP 38.202 38422 Exercise Prescription EP2 38.406 |
| II.D.1.b | Knowledge of the minimal threshold of physical activity required for health benefits and/or fitness development. | 38422 Exercise Prescription |
| II.D.1.c | Knowledge of safe and effective exercises designed to enhance muscular strength and/or endurance of major muscle groups. | 38422 Exercise Prescription EP2 38.406 |
| II.D.1.d | Knowledge of safe and effective stretches that enhance flexibility. | 38.315 Kinesiology 38422 Exercise Prescription EP2 38.406 |
| II.D.1.e | Knowledge of indications for water based exercise (e.g., arthritis, obesity). | 38422 Exercise Prescription |
| II.D.1.f | Knowledge of the types of resistance training programs (e.g., total body, split routine) and modalities (e.g., free weights, variable resistance equipment, pneumatic machines, bands). | 38.315 Kinesiology 38422 Exercise Prescription EP2 38.406 |
| II.D.1.g | Knowledge of acute (e.g., load, volume, sets, repetitions, rest periods, order of exercises) and chronic training variables (e.g., periodization). | 38422 Exercise Prescription EP2 38.406 |
| II.D.1.h | Knowledge of the types of muscle contractions (e.g., eccentric, concentric, isometric). | 38.315 Kinesiology 38.317 Kines Lab 38422 Exercise Prescription EP2 38.406 |
| II.D.1.i | Knowledge of joint movements (e.g., flexion, extension, adduction, abduction) and the muscles responsible for them. | 38.315 Kinesiology 38.317 Kines Lab 38422 Exercise Prescription |
| II.D.1.j | Knowledge of acute and delayed onset muscle soreness (DOMS). | 38422 Exercise Prescription EP2 38.406 Exercise Physiology I 38.305 |
| II.D.1.k | Knowledge of the anatomy and physiology of skeletal muscle fiber, the characteristics of fast-and slow-twitch muscle fibers, and the sliding filament theory of muscle contraction. | 38.315 Kinesiology 38422 Exercise Prescription EP2 38.406 Exercise Physiology I 38.305 |
| II.D.1.i | Knowledge of the stretch reflex, proprioceptors, golgi tendon organ (GTO), muscle spindles, and how they relate to flexibility. | 38.315 Kinesiology  
38422 Exercise Prescription  
EP2 38.406  
Exercise Physiology I 38.305 |
| II.D.1.m | Knowledge of muscle-related terminology including atrophy, hyperplasia, hypertrophy. | 38.315 Kinesiology  
38422 Exercise Prescription  
EP2 38.406  
Exercise Physiology I 38.305 |
| II.D.1.n | Knowledge of the Valsalva maneuver and its implications during exercise. | 38422 Exercise Prescription  
EP2 38.406 |
| II.D.1.o | Knowledge of the physiology underlying plyometric training and common plyometric exercises (e.g., box jumps, leaps, bounds). | 38.315 Kinesiology  
38422 Exercise Prescription  
EP2 38.406 |
| II.D.1.p | Knowledge of the contraindications and potential risks associated with muscular conditioning activities (e.g., straight-leg sit-ups, double leg raises, squats, hurdler’s stretch, yoga plough, forceful back hyperextension, and standing bent-over toe touch, behind neck press/lat pull-down). | 38.315 Kinesiology  
38422 Exercise Prescription  
EP2 38.406 |
| II.D.1.q | Knowledge of prescribing exercise using the calculated %1-RM. | 38422 Exercise Prescription  
EP2 38.406 |
| II.D.1.r | Knowledge of spotting positions and techniques for injury prevention and exercise assistance. | EP2 38.406 |
| II.D.1.s | Knowledge of periodization (e.g., macro, micro, mesocycles) and associated theories. | 38422 Exercise Prescription  
EP2 38.406 |
| II.D.1.t | Knowledge of safe and effective Olympic weight lifting exercises. | EP2 lab 38.408 |
| II.D.1.u | Knowledge of safe and effective core stability exercises (e.g., planks, crunches, bridges, cable twists). | 38.315 Kinesiology  
EP2 lab 38.408 |
| II.D.2.a | Skill in identifying improper technique in the use of resistive equipment (e.g., stability balls, weights, bands, resistance bars, and water exercise equipment). | 38.315 Kinesiology  
EP2 lab 38.408 |
| II.D.2.b | Skill in teaching and demonstrating appropriate exercises for enhancing musculoskeletal flexibility. | EP2 lab 38.408 |
| II.D.2.c | Skill in teaching and demonstrating safe and effective muscular strength and endurance exercises (e.g., free weights, weight machines, resistive bands, Swiss balls, body weight and all other major fitness equipment). | 38.315 Kinesiology  
EP2 lab 38.408 |

**Domain II: Exercise Prescription and Implementation**

**E. Establish exercise progression guidelines for resistance, aerobic and flexibility activity to achieve the goals of apparently healthy participants.**

| II.E.1.a | Knowledge of the basic principles of exercise progression. | 38.315 Kinesiology  
38422 Exercise Prescription  
EP2 38.406 |
| II.E.1.b | Knowledge of adjusting the FITT framework in response to individual changes in conditioning. | 38422 Exercise Prescription |
| II.E.1.c | Knowledge of the importance of performing periodic reevaluations to assess changes in fitness status. | 38422 Exercise Prescription  
EP2 38.406 |
| II.E.1.d | Knowledge of the training principles that promote improvements in muscular strength, muscular endurance, cardiorespiratory fitness, and flexibility. | 38422 Exercise Prescription  
EP2 38.406 |
| II.E.2.a | Skill in recognizing the need for progression and communicating updates to exercise prescriptions. | 38422 Exercise Prescription  
EP2 38.406 |
### Domain II: Exercise Prescription and Implementation

#### F. Implement a weight management program as indicated by personal goals that are supported by preparticipation health screening, health history, and body composition/anthropometrics.

| II.F.1.a | Knowledge of exercise prescriptions for achieving weight management, including weight loss, weight maintenance and weight gain goals. | 38422 Exercise Prescription |
| II.F.1.b | Knowledge of energy balance and basic nutritional guidelines (e.g., MyPyramid, USDA Dietary Guidelines for Americans). | Human Nutrition 35.206 |
| II.F.1.c | Knowledge of weight management terminology including, but not limited to, obesity, overweight, percent fat, BMI, lean body mass (LBM), anorexia nervosa, bulimia, binge eating, metabolic syndrome, body fat distribution, adipocyte, bariatrics, ergogenic aid, fat-free mass (FFM), resting metabolic rate (RMR) and thermogenesis. | EP2 38.406 Human Nutrition 35.206 |
| II.F.1.d | Knowledge of the relationship between body composition and health. | EP2 38.406 |
| II.F.1.e | Knowledge of the unique dietary needs of participant populations (e.g., women, children, older adults, pregnant women). | Human Nutrition 35.206 |
| II.F.1.f | Knowledge of common nutritional ergogenic aids, their purported mechanisms of action, and associated risks and benefits (e.g., protein/amino acids, vitamins, minerals, herbal products, creatine, steroids, caffeine). | EP2 38.406 |
| II.F.1.g | Knowledge of methods for modifying body composition including diet, exercise, and behavior modification. | EP2 38.406 |
| II.F.1.h | Knowledge of fuel sources for aerobic and anaerobic metabolism including carbohydrates, fats and proteins. | EP2 38.406 Exercise Physiology I Lab 38.307 Exercise Physiology I 38.305 |
| II.F.1.i | Knowledge of the effects of overall dietary composition on healthy weight management. | Human Nutrition 35.206 |
| II.F.1.j | Knowledge of the importance of maintaining normal hydration before, during and after exercise. | EP2 38.406 |
| II.F.1.k | Knowledge of the consequences of inappropriate weight loss methods (e.g., saunas, dietary supplements, vibrating belts, body wraps, over exercising, very low calorie diets, electric stimulators, sweat suits, fad diets). | EP2 38.406 |
| II.F.1.l | Knowledge of the kilocalorie levels of carbohydrate, fat, protein, and alcohol. | Human Nutrition 35.206 |
| II.F.1.m | Knowledge of the relationship between kilocalorie expenditures and weight loss. | Exercise Physiology I 38.305 |
| II.F.1.n | Knowledge of published position statements on obesity and the risks associated with it (e.g., National Institutes of Health, American Dietetic Association, ACSM). | EP2 38.406 |
| II.F.1.o | Knowledge of the relationship between body fat distribution patterns and health. | EP2 38.406 |
| II.F.1.p | Knowledge of the physiology and pathophysiology of overweight and obese participants. | EP2 38.406 |
| II.F.1.q | Knowledge of the recommended FITT framework for participants who are overweight or obese. | EP2 38.406 |
| II.F.1.r | Knowledge of comorbidities and musculoskeletal conditions associated with overweight and obesity that may require medical clearance and/or modifications to exercise testing and prescription. | EP2 38.406 |
| II.F.2.a | Skill in applying behavioral strategies (e.g., exercise, diet, behavioral modification strategies) for weight management. | Exercise Physiology I 38.305 |
| II.F.2.b | Skill in modifying exercises for individuals limited by body size. | EP1 38.305 EP2 38.406 |
| II.F.2.c | Skill in calculating the volume of exercise in terms of kcal-session⁻¹. | |

### Domain II: Exercise Prescription and Implementation

#### G. Prescribe and implement exercise programs for participants with controlled cardiovascular, pulmonary, and metabolic diseases and other clinical populations.

| II.G.1.a | Knowledge of ACSM risk stratification and exercise prescription guidelines for participants with cardiovascular, pulmonary, and metabolic diseases and other clinical populations. | 38422 Exercise Prescription |
| II.G.1.b | Knowledge of ACSM relative and absolute contraindications for initiating exercise sessions or exercise testing, and indications for terminating exercise sessions and exercise testing. | 38422 Exercise Prescription |
| II.G.1.c | Knowledge of physiology and pathophysiology of cardiac disease, arthritis, diabetes mellitus, dyslipidemia, hypertension, metabolic syndrome, musculoskeletal injuries, overweight and obesity, osteoporosis, peripheral artery disease, and pulmonary disease. | 38.315 Kinesiology  
38422 Exercise Prescription  
EP2 38.406 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>II.G.1.d</td>
<td>Knowledge of the effects of diet and exercise on blood glucose levels in diabetics.</td>
<td>EP2 38.406</td>
</tr>
</tbody>
</table>
| II.G.1.e | Knowledge of the recommended FITT principle for the development of cardiorespiratory fitness, muscular fitness and flexibility for participants with cardiac disease, arthritis, diabetes mellitus, dyslipidemia, hypertension, metabolic syndrome, musculoskeletal injuries, overweight and obesity, osteoporosis, peripheral artery disease, and pulmonary disease. | 38422 Exercise Prescription  
EP2 38.406 |
| II.G.2.a | Skill in progressing exercise programs, according to the FITT principle, in a safe and effective manner. | 38422 Exercise Prescription |
| II.G.2.b | Skill in modifying the exercise prescription and/or exercise choice for individuals with cardiac disease, arthritis, diabetes mellitus, dyslipidemia, hypertension, metabolic syndrome, musculoskeletal injuries, overweight and obesity, osteoporosis, peripheral artery disease, and pulmonary disease. | 38422 Exercise Prescription |
| II.G.2.c | Skill in identifying improper exercise techniques and modifying exercise programs for participants with low back, neck, shoulder, elbow, wrist, hip, knee and/or ankle pain. | EP2 38.406 |

### Domain II: Exercise Prescription and Implementation

#### H. Prescribe and implement exercise programs for healthy special populations (i.e., older adults, youth, pregnant women).

| II.H.1.a | Knowledge of normal maturational changes, from childhood to old age, and their effects on the skeletal muscle, bone, reaction time, coordination, posture, heat and cold tolerance, maximal oxygen consumption, strength, flexibility, body composition, resting and maximal heart rate, and resting and maximal blood pressure. | 38.315 Kinesiology  
EP2 38.406 |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>II.H.1.b</td>
<td>Knowledge of techniques for the modification of cardiovascular, flexibility, and resistance exercises based on age, functional capacity and physical condition.</td>
<td>EP2 38.406</td>
</tr>
<tr>
<td>II.H.1.c</td>
<td>Knowledge of techniques for the development of exercise prescriptions for children, adolescents and older adults with regard to strength, functional capacity, and motor skills.</td>
<td>38.420 AdvStdy/EP</td>
</tr>
</tbody>
</table>
| II.H.1.d | Knowledge of the unique adaptations to exercise training in children, adolescents, and older participants with regard to strength, functional capacity, and motor skills. | EP2 38.406  
Exercise Physiology I 38.305 |
| II.H.1.e | Knowledge of the benefits and precautions associated with exercise training across the lifespan. | EP2 38.406  
Exercise Physiology I 38.305 |
| II.H.1.f | Knowledge of the recommended FITT framework for the development of cardiorespiratory fitness, muscular fitness and flexibility in apparently healthy children and adolescents. | EP2 38.406 |
| II.H.1.g | Knowledge of the effects of the aging process on the musculoskeletal and cardiovascular structures and functions during rest, exercise, and recovery. | EP2 38.406 |
| II.H.1.h | Knowledge of the recommended FITT framework necessary for the development of cardiorespiratory fitness, muscular fitness, balance, and flexibility in apparently healthy, older adults. | EP2 38.406 |
| II.H.1.i | Knowledge of common orthopedic and cardiovascular exercise considerations for older adults. | 38.315 Kinesiology  
EP2 38.406 |
| II.H.1.j | Knowledge of the relationship between regular physical activity and the successful performance of activities of daily living (ADLs) for older adults. | EP2 38.406 |
| II.H.1.k | Knowledge of the recommended frequency, intensity, type, and duration of physical activity necessary for the development of cardiorespiratory fitness, muscular fitness and flexibility in apparently healthy pregnant women. | Exercise Physiology I 38.305 |
| II.H.2.a | Skill in teaching and demonstrating appropriate exercises for healthy populations with special considerations. | Exercise Physiology I 38.305  
EP2 lab 38.408 |
<p>| II.H.2.b | Skill in modifying exercises based on age, physical condition, and current health status. | Exercise Physiology I 38.305 |</p>
<table>
<thead>
<tr>
<th></th>
<th>Knowledge of the effects of a hot, cold, or high altitude environment on the physiologic response to exercise.</th>
<th>38422 Exercise Prescription EP2 38.406 Exercise Physiology I 38.305</th>
</tr>
</thead>
<tbody>
<tr>
<td>II.I.1.b</td>
<td>Knowledge of special precautions and program modifications for exercise in a hot, cold, or high altitude environment.</td>
<td>38422 Exercise Prescription EP2 38.406 Exercise Physiology I 38.305</td>
</tr>
<tr>
<td>II.I.1.c</td>
<td>Knowledge of the role of acclimatization when exercising in a hot or high altitude environment.</td>
<td>38422 Exercise Prescription EP2 38.406</td>
</tr>
<tr>
<td>II.I.1.d</td>
<td>Knowledge of appropriate fluid intake during exercise in a hot, humid environments as well as cold, and altitude.</td>
<td>38422 Exercise Prescription EP2 38.406 Exercise Physiology I 38.305</td>
</tr>
</tbody>
</table>

**Domain III: Exercise Counseling and Behavioral Strategies**

**A. Optimize adoption and adherence to exercise programs and other healthy behaviors by applying effective communication techniques.**

| III.A.1.a | Knowledge of the effective and timely uses of communication modes (e.g., email, telephone, web site, newsletters). | 38.301 Junior Seminar 38.418 Senior Seminar |
| III.A.1.b | Knowledge of verbal and non-verbal behaviors that communicate positive reinforcement and encouragement (e.g., eye contact, targeted praise, empathy). | 38.301 Junior Seminar 38.418 Senior Seminar |
| III.A.1.c | Knowledge of group leadership techniques for working with participants of all ages. | 38.301 Junior Seminar |
| III.A.1.d | Knowledge of active listening techniques. | 38.301 Junior Seminar |
| III.A.1.e | Knowledge of learning modes (auditory, visual, kinesthetic). | 38.418 Senior Seminar |
| III.A.1.f | Knowledge of types of feedback (e.g., evaluative, supportive, descriptive). | 38.412 Clinical Practicum |
| III.A.2.a | Skill in applying teaching and training techniques to optimize participant training sessions. | 38.412 Clinical Practicum |
| III.A.2.b.c | Skill in using feedback to optimize participant training sessions. | 38.412 Clinical Practicum |
| III.A.2.d | Skill in applying verbal and non-verbal communications with diverse participant populations. | 38.412 Clinical Practicum |

**Domain III: Exercise Counseling and Behavioral Strategies**

**B. Optimize adoption of and adherence to exercise programs and other healthy behaviors by applying effective behavioral and motivational strategies.**

| III.B.1.a | Knowledge of behavior change models and theories (e.g., health belief model, theory of planned behavior, socio-ecological model, transtheoretical model, social cognitive theory, cognitive evaluation theory). | 38422 Exercise Prescription |
| III.B.1.b | Knowledge of the basic principles involved in Motivational Interviewing. | 38422 Exercise Prescription |
| III.B.1.c | Knowledge of intervention strategies and stress management techniques. | 38422 Exercise Prescription 38.418 Senior Seminar |
| III.B.1.d | Knowledge of the stages of motivational readiness (e.g., Transtheoretical model). | 38422 Exercise Prescription |
| III.B.1.e | Knowledge of behavioral strategies for enhancing exercise and health behavior change (e.g., reinforcement, S.M.A.R.T. goal setting, social support). | 38422 Exercise Prescription |
| III.B.1.f | Knowledge of behavior modification terminology including, but not limited to, self-esteem, self-efficacy, antecedents, cues to action, behavioral beliefs, behavioral intentions, and reinforcing factors. | 38422 Exercise Prescription |
| III.B.1.g.h | Knowledge of behavioral strategies (e.g., exercise, diet, behavioral modification strategies) for weight management. | 38422 Exercise Prescription 38.418 Senior Seminar |
| III.B.1.h | Knowledge of the role that affect, mood and emotion play in exercise adherence. | 38422 Exercise Prescription |
| III.B.1.i | Knowledge of common barriers to exercise initiation and compliance (e.g., time management, injury, fear, lack of knowledge, weather). | 38422 Exercise Prescription |
| III.B.1.j | Knowledge of techniques that facilitate motivation (e.g., goal setting, incentive programs, achievement recognition, social support). | 38422 Exercise Prescription |
| III.B.1.k | Knowledge of the role extrinsic and intrinsic motivation plays in the adoption and maintenance of behavior change. | 38422 Exercise Prescription |
| III.B.1.l | Knowledge of relapse prevention strategies and plans of action. | 38422 Exercise Prescription |
| III.B.1.m | Knowledge of applying health coaching principles and lifestyle management techniques related to behavior change. | 38422 Exercise Prescription |
| III.B.1.n | Knowledge of strategies that increase non-structured physical activity levels (e.g., stair walking, parking farther away, bike to work). | 38422 Exercise Prescription 38.412 Senior Seminar |
| III.B.2.a | Skill in explaining the purpose and value of understanding perceived exertion. | 38.305 Exercise Physiology I 38.406 EPII |
| III.B.2.b | Skill in using imagery as a motivational tool. | |
| III.B.2.c | Skill in evaluating behavioral readiness to optimize exercise adherence. | |
| III.B.2.d | Skill in applying the theories related to behavior change to diverse populations. | |
| III.B.2.e | Skill in developing intervention strategies to increase self-efficacy and self-confidence. | |
| III.B.2.f | Skill in developing reward systems that support and maintain program adherence. | |
| III.B.2.g | Skill in setting effective behavioral goals. | |

**Domain III: Exercise Counseling and Behavioral Strategies**

**C. Provide educational resources to support clients in the adoption and maintenance of healthy lifestyle behaviors.**

| III.C.1.a | Knowledge of the relationship between physical inactivity and common chronic diseases (e.g., Atherosclerosis, type II diabetes, obesity, dyslipidemia, arthritis, low back pain, hypertension). | 38.315 Kinesiology 38.305 Exercise Physiology I 38.406 Exercise Physiology II |
| III.C.1.b | Knowledge of the dynamic inter-relationship between fitness level, body composition, stress and overall health. | |
| III.C.1.c | Knowledge of modifications necessary to promote healthy lifestyle behaviors for diverse populations. | |
| III.C.1.d | Knowledge of stress management techniques and relaxation techniques (e.g., progressive relaxation, guided imagery, massage therapy). | |
| III.C.1.e | Knowledge of the activities of daily living (ADLs) and how they relate to overall health. | |
| III.C.1.f | Knowledge in accessing and disseminating scientifically-based, relevant health, exercise, nutrition, and wellness-related resources and information. | 38.417 Research Methods in Exercise Physiology |
| III.C.1.g | Knowledge of specific, age-appropriate leadership techniques and educational methods to increase client engagement. | |
| III.C.1.h | Knowledge of community-based exercise programs that provide social support and structured activities (e.g., walking clubs, intramural sports, golf leagues, cycling clubs). | |
| III.C.2.a | Skill in accessing and delivering health, exercise, and wellness-related information. | 38.418 Clinical Practicum |
| III.C.2.b | Skill in educating clients about benefits and risks of exercise and the risks of sedentary behavior. | 38. 418 clinical Practicum |

**Domain III: Exercise Counseling and Behavioral Strategies**

**D. Provide support within the scope of practice of a Health Fitness Specialist and refer to other health professionals as indicated.**

<p>| III.D.1.a | Knowledge of the side effects of common over-the-counter and prescription drugs that may impact a client’s ability to exercise. | 38.356 Pharmacology |
| III.D.1.b | Knowledge of signs and symptoms of mental health states (e.g., anxiety, depression, eating disorders) that may necessitate referral to a medical or mental health professional. | |
| III.D.1.c | Knowledge of symptoms and causal factors of test anxiety (i.e., performance, appraisal threat during exercise testing) and how they may affect physiological responses to testing. | |
| III.D.1.d | Knowledge of client needs and learning styles that may impact exercise sessions and exercise testing procedures. | |</p>
<table>
<thead>
<tr>
<th>III.D.1.e</th>
<th>Knowledge of conflict resolution techniques that facilitate communication among exercise cohorts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>III.D.2.a</td>
<td>Skill in communicating the need for medical, nutritional, or mental health intervention.</td>
</tr>
<tr>
<td><strong>Domain IV: Legal/Professional</strong></td>
<td></td>
</tr>
<tr>
<td><strong>A.</strong> Create and disseminate risk management guidelines for a health/fitness facility, department or organization to reduce member, employee and business risk.</td>
<td></td>
</tr>
<tr>
<td>IV.A.1.a</td>
<td>Knowledge of employee criminal background checks, child abuse clearances and drug and alcohol screenings.</td>
</tr>
<tr>
<td>IV.A.1.b</td>
<td>Knowledge of employment verification requirements mandated by state and federal laws.</td>
</tr>
<tr>
<td>IV.A.1.c</td>
<td>Knowledge of safe handling and disposal of body fluids and employee safety (OSHA guidelines).</td>
</tr>
<tr>
<td>IV.A.1.d</td>
<td>Knowledge of insurance coverage common to the health/fitness industry including general liability, professional liability, workers' compensation, property, and business interruption.</td>
</tr>
<tr>
<td>IV.A.1.e</td>
<td>Knowledge of sexual harassment policies and procedures.</td>
</tr>
<tr>
<td>IV.A.1.f</td>
<td>Knowledge of interviewing techniques.</td>
</tr>
<tr>
<td>IV.A.1.g</td>
<td>Knowledge of basic precautions taken in an exercise setting to ensure participant safety.</td>
</tr>
<tr>
<td>IV.A.1.h</td>
<td>Knowledge of pre-activity screening, medical release and waiver of liability for normal and at-risk participants.</td>
</tr>
<tr>
<td>IV.A.1.i</td>
<td>Knowledge of emergency response systems and procedures (EAP).</td>
</tr>
<tr>
<td>IV.A.1.j</td>
<td>Knowledge of the use of signage.</td>
</tr>
<tr>
<td>IV.A.1.k</td>
<td>Knowledge of preventive maintenance schedules and audit</td>
</tr>
<tr>
<td>IV.A.1.l</td>
<td>Knowledge of techniques and methods of evaluating the condition of exercise equipment to reduce the potential risk of injury.</td>
</tr>
<tr>
<td>IV.A.1.m</td>
<td>Knowledge of the legal implications of documented safety procedures, the use of incident documents, and ongoing safety training documentation for the purpose of safety and risk management</td>
</tr>
<tr>
<td>IV.A.1.n</td>
<td>Knowledge of documentation procedures for CPR and AED certification for employees.</td>
</tr>
<tr>
<td>IV.A.1.o</td>
<td>Knowledge of AED guidelines for implementation.</td>
</tr>
<tr>
<td>IV.A.1.p</td>
<td>Knowledge of the components of the ACSM Code of Ethics and the ACSM Certified Health Fitness Specialist scope of practice.</td>
</tr>
<tr>
<td>IV.A.2.a</td>
<td>Skill in developing and disseminating a policy and procedures manual.</td>
</tr>
<tr>
<td>IV.A.2.b</td>
<td>Skill in developing and implementing confidentiality policies.</td>
</tr>
<tr>
<td>IV.A.2.c</td>
<td>Skill in maintenance of a safe exercise environment (e.g., equipment operation, proper sanitation, safety and maintenance of exercise areas, and overall facility maintenance).</td>
</tr>
<tr>
<td>IV.A.2.d</td>
<td>Skill in the organization, communication, and human resource management required to implement risk management policies and procedures.</td>
</tr>
<tr>
<td>IV.A.2.e</td>
<td>Skill in training employees to identify high risk situations.</td>
</tr>
<tr>
<td><strong>Domain IV: Legal/Professional</strong></td>
<td></td>
</tr>
<tr>
<td><strong>B.</strong> Create an effective injury prevention program and ensure that emergency policies and procedures are in place.</td>
<td></td>
</tr>
<tr>
<td>IV.B.1.a</td>
<td>Knowledge of emergency procedures (i.e., telephone procedures, written emergency procedures (EAP), personnel responsibilities) in a health and fitness setting</td>
</tr>
<tr>
<td>IV.B.1.b</td>
<td>Knowledge of basic first-aid procedures for exercise-related injuries, such as bleeding, strains/sprains, fractures, and exercise intolerance (dizziness, syncope, heat and cold injuries).</td>
</tr>
<tr>
<td>IV.B.1.c</td>
<td>Knowledge of the Health Fitness Specialist’s responsibilities and limitations, and the legal implications of carrying out emergency procedures.</td>
</tr>
<tr>
<td>IV.B.1.d</td>
<td>Knowledge of safety plans, emergency procedures and first-aid techniques needed during fitness evaluations, exercise testing, and exercise training</td>
</tr>
<tr>
<td>IV.B.1.e</td>
<td>Knowledge of potential musculoskeletal injuries (e.g., contusions, sprains, strains, fractures), cardiovascular/pulmonary complications (e.g., tachycardia, bradycardia, hypotension/hypertension, dyspnea) and metabolic abnormalities (e.g., fainting/syncope, hypoglycemia/hyperglycemia, hypothermia/ hyperthermia).</td>
</tr>
<tr>
<td>IV.B.1.f</td>
<td>Knowledge of the initial management and first-aid techniques associated with open wounds, musculoskeletal injuries, cardiovascular/pulmonary complications, and metabolic disorders.</td>
</tr>
<tr>
<td>IV.B.1.g</td>
<td>Knowledge of emergency documentation and appropriate document utilization.</td>
</tr>
<tr>
<td>IV.B.2.a</td>
<td>Skill in applying basic first-aid procedures for exercise-related injuries, such as bleeding, strains/sprains, fractures, and exercise intolerance (dizziness, syncope, heat and cold injuries).</td>
</tr>
<tr>
<td>IV.B.2.b</td>
<td>Skill in applying basic life support, first aid, cardiopulmonary resuscitation, and automated external defibrillator techniques.</td>
</tr>
<tr>
<td>IV.B.2.c</td>
<td>Skill in designing an evacuation plan.</td>
</tr>
<tr>
<td>IV.B.2.d</td>
<td>Skill in demonstrating emergency procedures during exercise testing and/or training.</td>
</tr>
</tbody>
</table>

**Domain V: Management**

**A. Manage human resources in accordance with leadership, organization, and management techniques.**

| V.A.1.a | Knowledge of industry benchmark compensation and employee benefit guidelines. |
| V.A.1.b | Knowledge of federal, state and local laws pertaining to staff qualifications and credentialing requirements. |
| V.A.1.c | Knowledge of techniques for tracking and evaluating member retention. |
| V.A.2.a | Skill in applying policies, practices and guidelines to efficiently hire, train, supervise, schedule and evaluate employees. |
| V.A.2.b | Skill in applying conflict resolution techniques. |

**Domain V: Management**

**B. Manage fiscal resources in accordance with leadership, organization, and management techniques.**

| V.B.1.a | Knowledge of fiduciary roles and responsibilities inherent in managing an exercise and health promotion program. |
| V.B.1.b | Knowledge of principles of financial planning and goal setting, institutional budgeting processes, forecasting, and allocation of resources. |
| V.B.1.c | Knowledge of basic software systems that facilitate accounting (e.g., Excel). |
| V.B.1.d | Knowledge of industry benchmarks for budgeting and finance. |
| V.B.1.e | Knowledge of basic sales techniques that promote health, fitness, and wellness services. |
| V.B.2.a | Skill in efficiently managing financial resources and performing related tasks (e.g., planning, budgeting, resource allocation, revenue generation). |
| V.B.2.b | Skill in administering fitness- and wellness-related programs within established budgetary guidelines. |

**Domain V: Management**

**C. Establish policies and procedures for the management of health fitness facilities based on accepted safety and legal guidelines, standards and regulations.**

| V.C.1.a | Knowledge of accepted guidelines, standards, and regulations used to establish policies and procedures for the management of health fitness facilities. |
| V.C.1.a | Knowledge of facility design and operation principles. |
| V.C.1.a | Knowledge of facility and equipment maintenance guidelines. |
| V.C.1.a | Knowledge of documentation techniques for health fitness facility management. |
| V.C.1.a | Knowledge of federal, state, and local laws as they relate to health fitness facility management. |

**Domain V: Management**

**D. Develop and execute a marketing plan to promote programs, services and facilities.**

<p>| V.D.1.a | Knowledge of lead generation techniques. |
| V.D.1.b | Knowledge of the four Ps of marketing: product, price, placement, and promotion. |</p>
<table>
<thead>
<tr>
<th>V.D.1.c</th>
<th>Knowledge of public relations, community awareness, and sponsorship and their relationship to branding initiatives.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V.D.1.d</td>
<td>Knowledge of advertising techniques.</td>
</tr>
<tr>
<td>V.D.1.e</td>
<td>Knowledge of target market (internal) assessment techniques.</td>
</tr>
<tr>
<td>V.D.1.f</td>
<td>Knowledge of target market (external) assessment techniques.</td>
</tr>
<tr>
<td>V.D.2.a</td>
<td>Skill in applying marketing techniques that promote client retention.</td>
</tr>
<tr>
<td>V.D.2.b</td>
<td>Skill in applying marketing techniques that attract new clients.</td>
</tr>
<tr>
<td>V.D.2.c</td>
<td>Skill in designing and writing promotional materials</td>
</tr>
<tr>
<td>V.D.2.d</td>
<td>Skill in collaborating with community and governmental agencies and organizations.</td>
</tr>
<tr>
<td>V.D.2.e</td>
<td>Skill in providing customer service.</td>
</tr>
</tbody>
</table>

**Domain V: Management**

**E. Use effective communication techniques to develop professional relationships with other allied health professionals (e.g., nutritionists, physical therapists, physicians, nurses).**

| V.E.1.a  | Knowledge of communication styles and techniques.                                                               | 38.412 Senior Seminar  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>V.E.1.b</td>
<td>Knowledge of networking techniques.</td>
</tr>
</tbody>
</table>
| V.E.2.a  | Skill in planning meetings.                                                                                    | 38.301 Junior seminar  
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-----------</td>
<td>-----------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>

**APPENDIX C**
### Listing of Courses Covering Task Statements

In the spaces below, please provide a listing of the courses you have used to complete the JTA form above so that this list can be checked against your curriculum guides.

<table>
<thead>
<tr>
<th>Course Prefix and Number</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>38. 202</td>
<td>Introduction to Exercise Physiology</td>
<td>3</td>
</tr>
<tr>
<td>35.206</td>
<td>Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>38.305</td>
<td>Exercise Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>38.307</td>
<td>Exercise Physiology I lab</td>
<td>1</td>
</tr>
<tr>
<td>38.315</td>
<td>Kinesiology Lecture</td>
<td>3</td>
</tr>
<tr>
<td>38.317</td>
<td>Kinesiology Lab</td>
<td>1</td>
</tr>
<tr>
<td>38.406</td>
<td>Exercise Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>38.408</td>
<td>Exercise Physiology II lab</td>
<td>1</td>
</tr>
<tr>
<td>38.356</td>
<td>Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>38.301</td>
<td>Junior Seminar</td>
<td>1</td>
</tr>
<tr>
<td>38.412</td>
<td>Clinical Practicum</td>
<td>4</td>
</tr>
<tr>
<td>38.417</td>
<td>Research Methods in Exercise Physiology</td>
<td>3</td>
</tr>
<tr>
<td>38.418</td>
<td>Senior Seminar</td>
<td>3</td>
</tr>
<tr>
<td>38.422</td>
<td>Exercise Prescription and Programing</td>
<td>3</td>
</tr>
<tr>
<td>38.420</td>
<td>Advanced Study in Exercise Physiology</td>
<td>3</td>
</tr>
</tbody>
</table>
Appendix D: Student Practicum Evaluation Form
EXERCISE PHYSIOLOGY PRACTICUM
STUDENT PERFORMANCE EVALUATION

(please print)

STUDENT: ________________________________

PRACTICUM FACILITY: __________________________

TYPE OF EXPERIENCE:

- Outpatient Cardiac Rehabilitation
- Outpatient Pulmonary Rehabilitation
- Fitness/Wellness
- Strength / Conditioning
- Research
- Other: __________________________

TIME OF PRACTICUM:

- Fall Semester Academic Year ______
- Summer/ Fall Semester Academic Year ______
- Spring Semester Academic Year ______

PRACTICUM SUPERVISOR(S):

________________________________________

DAYS ABSENT: __________________

REASON FOR ABSENCE(S):

________________________________________
Form adapted from The New England Consortium

The following evaluation must be filled out separately by the student and the practicum supervisor at mid-term and again at the end of the semester. The evaluation process is intended to be a way to discuss formative feedback and to plan learning opportunities.

Once the student has completed his/her portion, and the practicum supervisor has completed his/her portion, they should meet and together discuss the evaluation process both at mid-term and final. The final section must be completed before the students last day at practicum since it is used to determine student’s grade.

Please return this form to the Senior Practicum Instructor within three (3) business days of the last day of the practicum or give to the student on their last day so that grades may be submitted by the Senior Practicum Instructor. Grades can be emailed or scanned to Michele_fox@uml.edu or faxed to Michele at 978-934-1069.

Please contact us with any questions you may have about this form.

Thank you!

Practicum Instructor
Michele Fox  978-934-4766  Michele_fox@uml.edu

Introduction to the Student Practicum Performance Evaluation Tool

This Evaluation Tool was adapted and modified for the Exercise Physiology Program from The New England PT Consortium, and it is designed as a process-oriented tool. The emphasis is on developing students as beginning professionals who not only possess the knowledge learned in school, but also can apply it with competency and clear communication skills.

The Evaluation Tool is divided into five major areas for individual review:

I. Professional Behavior and Attitude
II. Safety
III. Interpersonal Relationships and Communication Skills
IV. The Problem-Solving Process
V. Administration/Management Skills
Guidelines for Evaluation

Objective:
This Evaluation Tool is process-oriented and specifically delineates to the student’s technical competencies together with those behaviors and expectations which comprise both professional behavior and a systematic approach to solving problems.

Base your evaluation on the most frequently observed level of performance. Grades should not be based on an isolated incident. The student should be provided the opportunity to correct any problem areas.

Please use the comment section to illustrate points, provide anecdotal comments and/or information to help document grading.

The Rating Scale and Definitions

The following definitions are provided for consistency and clarity. Please use the rating scale below to indicate the student's level of competency for each of the stated objectives/sub-objectives.

4: Excellent. Consistently meets the stated objective and/or the student is capable of functioning safely and independently. The student may seek confirmation from the practicum supervisor. (Confirmation = Student may confer with the practicum supervisor prior to, or following an activity for the purpose of sharing information and/or validating the student's decision-making or behavior.)

3: Good. Consistently meets the stated objective. The student, however, needs guidance from the practicum supervisor about decision-making, information or behavior. (Guidance = Student needs advice from the practicum supervisor to expand knowledge or skills. The presence of the practicum supervisor in the immediate vicinity is not necessary.)

2: Weak. Meets the stated objective, but with inconsistencies (knowledge, behavior or decision-making.) The student requires supervision from the practicum supervisor. (Supervision = Student needs verbal cueing or physical assistance from the practicum supervisor. The presence of the practicum supervisor in the immediate vicinity is necessary.) If this persists after Midterm, please contact the practicum instructor.

1: Poor/Unacceptable. Does not meet the stated objective (knowledge, behavior or decision-making.) The student requires constant supervision from the practicum supervisor. The practicum supervisor is essentially standing next to the student. (Constant supervision = Student requires continuous verbal cueing or continuous physical assistance from the practicum supervisor.) If this does not improve after the first few weeks, please contact the practicum instructor immediately!

N/A: Not applicable. The stated objective is not applicable to this setting.

N/O: Not observed. The stated objective is not observed to the extent that a rating is appropriate. No grade shall be based on an isolated incident.
# I. PROFESSIONAL BEHAVIOR AND ATTITUDE

<table>
<thead>
<tr>
<th></th>
<th>Midterm</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is punctual and dependable</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Wears appropriate attire, including required student name tag</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Follows ethical and legal standards of practice and behavior</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Demonstrates a positive attitude (motivation) towards learning</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Shows initiative</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Is able to self-evaluate accurately; able to critique own performance</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Accepts responsibility for own actions</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Shows respect, compassion and empathy for others</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Maintains confidentiality</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Follows through with commitments and assignments</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Adapts well to changing situations, is flexible</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Demonstrates respect of personal space</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Actively seeks help/feedback when necessary</td>
<td></td>
</tr>
</tbody>
</table>

**COMMENTS/DOCUMENTATION:** Professional Behavior and Attitude

Mid-Term:

Final:

---

# II. SAFETY

<table>
<thead>
<tr>
<th></th>
<th>Midterm</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Observes facility's health and safety precautions (including Standard Precautions)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Knows the facility's emergency protocol</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Recognizes changes in the client's physiological and psychological status</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Responds appropriately to changes in the client's status</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Safely assists and guards clients during exercise testing and training</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Asks for appropriate help when necessary</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Can monitor more than one client at a time</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Knows contradictions/precautions to exercises</td>
<td></td>
</tr>
</tbody>
</table>

**COMMENTS/DOCUMENTATION:** Safety

Mid-Term:

Final:

---

**Key**

- 4 = Excellent (Confirmation)  
- 3 = Good (guidance)  
- 2 = Weak (Supervision)  
- 1 = Poor/unacceptable (constant supervision)  
- N/A  
- N/O

**Revised:** December 2013  
**Page 4 of 9**
### III. INTERPERSONAL RELATIONSHIPS AND COMMUNICATION SKILLS

(VERBAL, NON-VERBAL, PAPERWORK/DOCUMENTATION)

<table>
<thead>
<tr>
<th>Verbal</th>
<th>Midterm</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Uses appropriate verbal communication skills, including tone of voice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Uses appropriate terminology that is easily understood by clients/patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Demonstrates ease in speaking in front of a group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Establishes effective relationships with client/patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Establishes effective relationships with practicum supervisor and staff members</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Responds well to feedback from practicum supervisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Demonstrates good teaching skills</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nonverbal</th>
<th>Midterm</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Uses non-verbal communication appropriately</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Correctly interprets and responds to the non-verbal behavior of others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paperwork/Documentation</th>
<th>Midterm</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Maintains documentation in accordance with the facility's policies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Writes in an organized, logical, and concise manner</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Uses appropriate professional terminology and abbreviations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Written materials are done accurately and in a timely manner</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COMMENTS/DOCUMENTATION:** Interpersonal Relationships and Communication Skills

- **Mid-Term:**

- **Final:**

**Key**

4 = Excellent (Confirmation)  2 = Weak (Supervision)
3 = Good (guidance)           1 = Poor/unacceptable (constant supervision)  N/A  N/O
## IV. THE PROBLEM-SOLVING PROCESS

<table>
<thead>
<tr>
<th>Problem Identification</th>
<th>Mid-term</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Clearly recognizes that a problem(s) exists that needs to be addressed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Defines/explains the problem(s) that needs to be addressed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Analyzes the problem(s) into components to be solved and prioritizes them</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Management/Gathering of Data</th>
<th>Midterm</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Organizes available data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Reviews medical/physical history including risk factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Reviews medications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Identifies need for additional information, when appropriate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Understands the effects of medication(s) on performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Has the skills to gather pertinent data (if appropriate to the site):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Blood pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Heart rate (radial pulse)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) EKG lead placement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Protocols:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bruce</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modified Bruce</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Interprets Borg RPE scale(s) to clients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Strength testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) Muscular endurance testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h) Flexibility testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Body fat composition testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j) Other:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Recognizes end points of testing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Development of a solution(s)</th>
<th>Midterm</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Correctly understands test data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Establishes realistic and timely goals with and for the client/patient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Designs a comprehensive exercise prescription with appropriate frequency, intensity, duration, mode, and progression</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4 Explains and defends rationale behind selected exercise
5 Demonstrates an understanding of the client’s psychological and psychological needs and abilities
6 Designs and modifies Exercise Prescription plans appropriate to the solution

<table>
<thead>
<tr>
<th>Implementation/Teaching of the solution(s)</th>
<th>Mid-Term</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Effectively teaches the following at an appropriate level (if appropriate to the site):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Aerobic Activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aerobic equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aerobic classes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others (list):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Resistive Exercises</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight Training Machines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free Weights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Flexibility Exercises</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Relaxation Exercises</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Stress Management Information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Other (list):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Teaches activities logically and clearly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Anticipates common errors in specific exercises and corrects accordingly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Knows sequential progression of exercises</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Provides proper feedback to the client</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaluation of the solution(s)</th>
<th>Mid-Term</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Monitors and evaluates client progress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Knows WHEN to modify exercise prescription</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Knows HOW to modify exercise prescription</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Reviews new goals/methods with client</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key

4 = Excellent (Confirmation)  2 = Weak (Supervision)
3 = Good (guidance)         1 = Poor/unacceptable (constant supervision)  N/A  N/O
COMMENTS/DOCUMENTATION: THE PROBLEM-SOLVING PROCESS
(Problem Identification; Management/Gathering of Data; & Development, Implementation/Teaching, and Evaluation of a solution)
Mid-Term:

Final:

V. ADMINISTRATION/MANAGEMENT SKILLS

<table>
<thead>
<tr>
<th></th>
<th>Mid-Term</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Organizes time effectively</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Completes tasks in a prompt, timely fashion</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Maintains efficient, clean, and safe work area</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Demonstrates how to clean and to maintain the various pieces of equipment</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Knows how to calibrate equipment</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Uses free time productively</td>
<td></td>
</tr>
</tbody>
</table>

COMMENTS/DOCUMENTATION: ADMINISTRATION/MANAGEMENT SKILLS
Mid-Term:

Final:

Key
4 = Excellent (Confirmation)  2 = Weak (Supervision)
3 = Good (guidance) 1= Poor/unacceptable (constant supervision)  N/A  N/O
### MID-TERM REVIEW

<table>
<thead>
<tr>
<th></th>
<th>Objectives Met</th>
<th>Objectives Not Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Professional Behavior and Attitude</td>
<td></td>
</tr>
<tr>
<td>II.</td>
<td>Safety</td>
<td></td>
</tr>
<tr>
<td>III.</td>
<td>Interpersonal Relationships &amp; Communication Skills</td>
<td></td>
</tr>
<tr>
<td>IV.</td>
<td>Problem-Solving Process</td>
<td></td>
</tr>
<tr>
<td>V.</td>
<td>Administration/Management Skills</td>
<td></td>
</tr>
</tbody>
</table>

Overall comments:

____________________________________________________________________________________
____________________________________________________________________________________

Goals for second half:

____________________________________________________________________________________
____________________________________________________________________________________

Date of Discussion

Student Signature

Practicum Instructor Signature

### FINAL REVIEW

<table>
<thead>
<tr>
<th></th>
<th>Objectives Met</th>
<th>Objectives Not Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Professional Behavior and Attitude</td>
<td></td>
</tr>
<tr>
<td>II.</td>
<td>Safety</td>
<td></td>
</tr>
<tr>
<td>III.</td>
<td>Interpersonal Relationships &amp; Communication Skills</td>
<td></td>
</tr>
<tr>
<td>IV.</td>
<td>Problem-Solving Process</td>
<td></td>
</tr>
<tr>
<td>V.</td>
<td>Administration/Management Skills</td>
<td></td>
</tr>
</tbody>
</table>

Overall Comments:

____________________________________________________________________________________
____________________________________________________________________________________

Student Strengths:

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

Areas to continue to improve on:

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

Date of Discussion

Student Signature

Practicum Instructor Signature
Appendix E: Faculty CVs
Kyle F. Coffey, PT, DPT  
Lecturer, Exercise Physiology  
Department of Physical Therapy, College of Health Sciences  
University of Massachusetts Lowell  
Updated: August 2014

Comprehensive Curriculum Vitae  
Appointment Date: September 2014

EDUCATION

Doctorate of Physical Therapy  
University of Massachusetts Lowell  
2007-2010

Bachelor of Science, Exercise Physiology  
Minor: Nutrition  
University of Massachusetts Lowell  
2003-2007

ACADEMIC TEACHING EXPERIENCE

Lecturer: Exercise Physiology I Lecture & Lab  
University of Massachusetts Lowell  
Fall 2014

Adjunct Faculty: “Exercise Physiology I Lecture”  
University of Massachusetts Lowell  
Fall 2013

Guest Lecturer: “EMR and Influence on Outpatient PT Practice”  
University of Massachusetts Lowell  
Spring 2011

Guest Lecturer: “Cardiopulmonary PT in the Outpatient Setting”  
University of Massachusetts Lowell  
Spring 2011

Graduate Teaching Assistant: Kinesiology I Laboratories  
University of Massachusetts Lowell  
2007-2009

RELATED TEACHING EXPERIENCE

APTA Certified Clinical Instructor  
Harvard Vanguard Medical Associates and Elliot Hospital  
2011-2014

Inservices
Evidence-Based Practice for Knee and Shoulder
Eccentric Strengthening for Tendinitis/Tendinosis
PROFESSIONAL EXPERIENCE

Staff Physical Therapist, Outpatient Orthopedics & Sports Medicine 2013-present
Elliot Health Systems
Manchester, NH

Staff Physical Therapist, Outpatient Orthopedics & Sports Medicine 2010-2013
Harvard Vanguard Medical Associates
Chelmsford, MA

PROFESSIONAL ACTIVITIES & MEMBERSHIPS

Professional Memberships

American College of Sports Medicine (ACSM) Pending 2014
American Physical Therapy Association (APTA) 2007-present
APTA of New Hampshire 2011-present
Orthopedic Section of APTA 2010-present

Professional Licenses & Certifications

Physical Therapy, State of New Hampshire Lic. #3695
Physical Therapy, State of Massachusetts Lic. #19132
American Heart Association BLS Certification: Adult & Infant 2015

Continuing Education

Kinesiotaping Method 2014
Return to Sport and Discharge Testing 2014
Introduction to Vestibular Rehabilitation 2013
Institute of Manual Therapy – Lumbar Evaluation and Examination 2013
Advances in the Evaluation and Treatment of the Knee and Shoulder 2012
Institute of Manual Therapy – Cervical Evaluation and Examination 2011
Manual Therapy for the Upper Extremity 2011
APTA Clinical Instructor Credentialing Course 2011

Community & Service Activities

Special Olympics of Massachusetts: Fitness Screener 2010
Stepping On Balance Program: Chelmsford, MA 2012
UMass Lowell Physical Therapy Program Advisory Board Member 2012-present
A. EDUCATION AND ACADEMIC QUALIFICATIONS

1. Education

2003  Sc.D.  University of Massachusetts Lowell
Department of Work Environment
Concentrations: Major: Ergonomics & Epidemiology
Dissertation: Job Strain & Electrocardiograph Assessed Pathophysiologic Mechanisms
Lorin E. Kerr Award for excellence in ergonomics research

1994  M.S.  University of Massachusetts Lowell
Major: Physical Therapy
Clinical Excellence Award for excellence during clinical rotations

1992  B.S.  University of Massachusetts Lowell
Major: Exercise Physiology

2. Academic Experience

2006 – Present  Associate Professor of Physical Therapy & Exercise Physiology
University of Massachusetts, Lowell, MA

2008 – 2013  Chairperson
Department of Physical Therapy & Exercise Physiology
University of Massachusetts Lowell
1999 - 2006  **Assistant Professor**, Department of Physical Therapy  
University of Massachusetts, Lowell, MA

1998 - 1999  **Instructor**, Department of Physical Therapy  
University of Massachusetts, Lowell, MA

3. **Additional Roles**

2005 – Present  **Adjunct Professor, Department of Work Environment**  
University of Massachusetts Lowell

2010 – 2012  **Co-Director, Kerr Ergonomics Institute**  
University of Massachusetts Lowell

2008 – 2012  **DPT Program Director, Department of Physical Therapy**  
University of Massachusetts Lowell

1998 – 2010  **Research Associate, Kerr Ergonomics Institute**  
University of Massachusetts Lowell

1996 - 1998  **Adjunct Professor, Department of Physical Therapy**  
University of Massachusetts Lowell

4. **Advanced Training**

2011  **National Heart Lung Blood Institute**, Mathematical and Systems  
Modeling of Cardiopulmonary Dynamics, Williamsburg, VA.

2006  **Harvard Medical School**, Boston, MA.  
Heart Rate Variability 2006 – Techniques, Applications and Directions

2003  **New England Complex Systems Institute**, Cambridge, MA  
Modeling Complex Systems Workshop

2003  **National Institutes of Health Trainee Workshop**, National Center for  
Medical Rehabilitation Research, Baltimore, MD

2002  **Nordic Advanced Training Institute (NIVA)**, Charlottenlund, Denmark  
Biomarkers of Stress in Relation to Occupational Health

1999  **John’s Hopkins Medical Center**, Cardiology Dept., Baltimore, MD  
Signal Processing for QT and HR Variability Analysis using Matlab
B. PROFESSIONAL ACTIVITIES

1. Professional Association Participation

**Membership**

<table>
<thead>
<tr>
<th>Year</th>
<th>Membership Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013 – Present</td>
<td>Fellow (Elected), Human Biology Association</td>
</tr>
<tr>
<td>2012 – Present</td>
<td>Member (Elected), American Physiological Society (APA)</td>
</tr>
<tr>
<td></td>
<td>Environmental &amp; Exercise Physiology Section</td>
</tr>
<tr>
<td></td>
<td>Teaching in Physiology Section</td>
</tr>
<tr>
<td></td>
<td>Cardiovascular Physiology Section</td>
</tr>
<tr>
<td>2012 – Present</td>
<td>Member (Elected), American Psychological Association</td>
</tr>
<tr>
<td>2008 – Present</td>
<td>Member, American College of Sports Medicine</td>
</tr>
<tr>
<td>2008 – Present</td>
<td>Member, National Strength and Conditioning Association</td>
</tr>
<tr>
<td>1994 – Present</td>
<td>Member, American Physical Therapy Association</td>
</tr>
<tr>
<td></td>
<td>Member, Cardiopulmonary Physical Therapy Section</td>
</tr>
<tr>
<td>2000 – 2010</td>
<td>Diplomat, American Board of Physical Therapy Specialists</td>
</tr>
<tr>
<td></td>
<td>Board Certified Cardiopulmonary Clinical Specialist</td>
</tr>
</tbody>
</table>

**Editorial / Peer Reviewer**

<table>
<thead>
<tr>
<th>Year</th>
<th>Review Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014 – Present</td>
<td>Associate Editor of CVP Tests &amp; Measures, PT Now</td>
</tr>
<tr>
<td>2014 – Present</td>
<td>Reviewer, Computers in Biology and Medicine</td>
</tr>
<tr>
<td>2011 – Present</td>
<td>Reviewer, Safety and Health at Work</td>
</tr>
<tr>
<td>2010 – Present</td>
<td>Reviewer, Occupational &amp; Environmental Medicine</td>
</tr>
<tr>
<td>2006 – Present</td>
<td>Reviewer, Hypertension</td>
</tr>
<tr>
<td>2008 – Present</td>
<td>Associate Editor, Cardiopulmonary Physical Therapy Journal</td>
</tr>
</tbody>
</table>

2. Professional Honors and Awards

**Honors**

<table>
<thead>
<tr>
<th>Year</th>
<th>Honors Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td><strong>Co-Leader</strong>, Cardiopulmonary Section Heart Failure Clinical Practice Guideline, Guideline Development Committee, December 2013</td>
</tr>
<tr>
<td>2010</td>
<td><strong>Invited Participant</strong>, <em>Development of Evidence-Based Documents and GRADE Methodology Workshop</em> at the American Physical Therapy Association to develop a framework and process for evidence based documents. Alexandria, Virginia, November 2010</td>
</tr>
<tr>
<td>2009</td>
<td><strong>Invited Faculty</strong>, <em>Low Control, Exhaustion and Heart Rate Variability</em>. Pre-conference workshop at Fifth International Conference of Work Environment and Cardiovascular Disease, Krakow, Poland, September 2009</td>
</tr>
<tr>
<td>2008</td>
<td><strong>Invited Guest Lecturer</strong>, <em>Cardiovascular Pacemakers: Implications for Physical Therapists</em> School of Physical Therapy, Dalhousie University, Halifax, Nova Scotia, April, 2008</td>
</tr>
</tbody>
</table>
2008  **Invited Participant**, *European Summit on CVD Prevention, European Association for Cardiovascular Prevention and Rehabilitation* - Invited to participate in multidisciplinary task force for practical implementation of CVD prevention guidelines, Nice, France.

2006  **Invited Participant**, *30 Years with the “Demand / Control Model” – and the challenge of a future social dialogue* – Invited to participate in this International Workshop at the Institute for Psychosocial Medicine: A National Center for Research on Stress and Psychosocial Health, Stockholm, Sweden.

2006  **Invited Guest Lecturer**, *Job Stress, Chronic Disease and Heart Rate Variability: Measuring a New Pathway of Work-related Chronic Disease Risk*, a Nordic Advanced Training Institute (NIVA) workshop at the National Institute of Occupational Health (AMI) in Copenhagen, Denmark, June 6-7, 2006.

2006  **Invited Faculty**, *How does the mind injure the body: a biopsychosocial perspective of cardiovascular health*, European Association of Cardiovascular Prevention and Rehabilitation, EuroPrevent 2006, Athens, Greece

2005  **Invited Panel Discussant**, *Psychosocial Factors & Cardiovascular Changes, Occupational and Environmental Health: Diesel, Particles, and Cardiovascular Health*, Fourth International Commission on Occupational Health Conference on Work Environment and Cardiovascular Disease, Los Angeles, CA


2004  **Presentation**, *Management of the Complex Patient from Acute Care to Rehab or Home*, Cardiovascular and Pulmonary Section, APTA, Combined Sections Meeting Educational Programming, Nashville, TN, with Ellen Hillegass & Gary Brooks

**Awards**

2010  **Teaching Award**, Department of Physical Therapy & Exercise Physiology

2008  **Teaching Excellence Award**, UMass Student Government Association

2006  **Teaching Excellence Award**, UMass Student Government Association

2005  **Third Place Recognition for Scientific Communication**, National Conference of Fisioterepia, Madrid, Spain

2004  **Teaching Award**, Department of Physical Therapy & Exercise Physiology

2004  **Teaching Excellence Award**, UMass Student Government Association
3. Non-Teaching Activities (Consulting and Other Professionally Related Work)

**Consulting**

**2003 – Present**  
Professional Physical Therapy Seminars

**2003 – 2006**  
Genesis Rehabilitation Services

**Clinical Practice**

**2010 – 2011**  
Physical Therapist, Collins Physical Therapy  
Dracut, MA. 01826

**2001 - 2003**  
Clinical Specialist, Cardiopulmonary Rehabilitation  
Spaulding Rehabilitation Hospital, Boston MA

**2000 – 2001**  
Physical Therapist, Lowell General Hospital, Lowell MA

**1998 – 2000**  
Physical Therapist  
HealthSouth Rehabilitation, Nashua NH

**1997 – 1998**  
Rehabilitation Supervisor & Physical Therapist  
Holy Family Medical Center, Methuen, MA

**1996 – 1997**  
Physical Therapist  
Holy Family Medical Center, Methuen, MA

**1994 – 1996**  
Physical Therapist, Massachusetts General Hospital, Boston, MA

C. RESEARCH

1. Grants & Contracts

**Funded**

**Funded**  
Cardiovascular & Pulmonary Section, Home Care Section (APTA)  
*Exercise Training and Frontloading of Visits in Home Care for patients with Heart Failure – A Randomized Controlled Trial*  
The purpose of this project is to compare the effectiveness of usual care home based rehabilitation by a physical therapist to care that is front loaded (more visits during the first 2 weeks) in patients with heart failure.  
Role: Co-Investigator (PI: Dias, Konrad; Maryville University, St Louis)

**Funded / Completed**

**2013**  
Merrimack Valley VNA  
*Care Path Development for Home Health Rehabilitation in Chronic Cardiopulmonary Conditions*  
The purpose of this project is to document the general model of existing practices for rehabilitation of patients with chronic cardiopulmonary conditions (specifically chronic heart failure (CHF) and chronic obstructive pulmonary disease (COPD) within the Merrimack Valley VNA system. A particular focus is on identifying areas of strength and those requiring development to bridge existing practice and best practice in the area of home rehabilitation of patients with CHF and COPD. The final purpose is to recommend educational programming to enable Home Health VNA rehabilitation staff to adopt and implement a recommended best practice Care Pathway.  
Role: PI
Collins, Sean Michael

QinetiQ, Inc; Department of Defense 2013
Laboratory Testing for a Remote Physiological Monitoring System
This will be a subcontract flow through originating from the Department of Defense, US Army Research Office and through QinetiQ North America, Technical Services Group. This is phase two of a project already underway (S51310000018240) to extend algorithms for human performance modeling of fatigue based on heart rate and respiratory dynamics.
Role: Co-Investigator (Sub-contract PI)

S51310000018240 (Ames) 2011-2012
Qinetiq, Inc (through from Department of Defense) $14,520
Laboratory Testing of a Remote Physiological Fatigue Monitoring System
This is a subcontract flow through originating from the Department of Defense, US Army Research Office and through QinetiQ North America, Technical Services Group. There are two goals to this project. First to test the validity of physiological measurements, position and activity recordings obtained by a garment based physiological monitoring system during physical activity. Second, the development of algorithms for human performance modeling of fatigue.
Role: Co-Investigator (Sub-contract PI)

Work Well Systems, Inc (Collins) 10/31/08 – 04/30/09
Prediction of Metabolic Demand & Functional Capacity $10,000
The overall goal of this project is to establish the conceptual basis and then several practical approaches for predicting and/or measuring: 1. metabolic demands of occupational tasks; 2. metabolic capacities of workers; and 3. an index of the metabolic demand / metabolic capacity balance that can be used to make recommendations regarding risk of fatigue or other possible untoward events.
Role: PI

UML Proposal #07060204 (Collins) 01/15/07 – 05/31/07
Planning Systems, Inc. $14,000
Physiological Fatigue Monitoring System During Physical Activity
The purpose of this study was to test the validity of physiological measurements, position and activity recordings obtained by a garment based physiological monitoring system during physical activity.
Role: PI

UML Proposal #06-333 (Collins) 05/09/06 – 08/31/06
Foster – Miller Engineering, Inc. $12,500
Physiological Fatigue Monitoring System During Physical Activity
The purpose of this study was to test the validity of physiological measurements, position and activity recordings obtained by a garment based physiological monitoring system during physical activity.
Role: PI

Project T06001108020007 (Collins) 07/01/05 – 06/30/07
Interdisciplinary Award – UMass Lowell Provost’s Office $20,000
Disabilities Research Interdisciplinary Grant
The purpose of this project was to develop an interdisciplinary program for the prevention and treatment of disability with consideration to the interactions between personal attributes, clinical features, socioeconomic & working conditions.
Role: Director
International Joint Research Program (Matsuo)  
11/01/05 – 10/31/06
Pfizer Health Research Foundation  
$5000

**International Survey of Cardiopulmonary Physical Therapy Practice & Education**
The purpose of this research was to investigate practice patterns of cardiopulmonary physical therapy education internationally and to investigate the role that future physical therapists are being trained in cardiovascular and pulmonary health.
Role: Co – PI

Corporation Research Network (Collins)  
01/01/04 – 12/31/04
Tanita Corporation Equipment Loan  
$3000

**Research Program on Exercise and Body Composition**
The principle objective was to initiate a line of research within the Department of Physical Therapy in collaboration with the Center for Health and Disease Research on exercise, nutrition, and cardiovascular disease risk and body composition.
Role: PI

Joseph Healey Endowment Grant (Collins)  
09/01/99 – 08/31/00
University of Massachusetts Lowell  
$1500

**Respiratory Muscle Training in Patients with Lung Disease**
The principle objective for this research was to evaluate the influence of respiratory muscle training on respiratory muscle strength, functional endurance and quality of life in patients with COPD.
Role: PI

### 2. Academic & Professional Publications

**Peer Reviewed Papers**


**Peer Reviewed Abstracts**


2006  Collins SM, Cahalin LP. Should we be considering Job Strain when evaluating our patients with cardiac disease? *Cardiopulmonary Physical Therapy Journal*, 2005; 16(4) 35.


2002 Collins SM, Karasek RA, Costas, K. Job Strain and Heart Rate Variability. **Third ICOH on Work Environment and Cardiovascular Disease. Duesseldorf, Germany, March 2002.**


**Letters to the Editor in Peer Reviewed Journals**


Chapters in Edited Volumes


D. INSTRUCTION RELATED ACTIVITY

1. Teaching

Undergraduate Teaching

2012 Kinesiology Lab (Fall semester)
2012 Pharmacology (Summer session)
2011 Exercise Physiology (Summer Session)
2010 Anatomy & Physiology II with lab (Middlesex Community College)
2010 Anatomy & Physiology I with lab (Middlesex Community College)
2008 – Present Exercise Prescription & Programming
2003 – Present Directed Study in Health Promotion
2006 – 2011 Advanced Study in Exercise Physiology (Summer Session)
2008 – 2010 Senior Seminar in Exercise Physiology
1998 – 2009 Exercise Physiology with Lab; (Summer Session)
2003 – 2008 Exercise Physiology I with Lab
1999 – 2006 Independent Study in Exercise Physiology
1998 – 2003 Kinesiology with Lab
Graduate Teaching

2011-Present  Quantitative Physiology; IB 575 Biomedical Engineering
2011-Present  Medical / Surgical: Pathology; 34.609; DPT
2010-Present  Physiological Dynamics; 38.501; Senior EP & PhD in Biomedical Engineering
2009-Present  Research Methods in Physical Therapy; 34.616; DPT
2006  Research Methods in Physical Therapy; 34.616; DPT
2006-Present  Biomedical Engineering Integrative Physiology Lab Experience; IB550; PhD in Biomedical Engineering
1998-Present  Cardiopulmonary Physical Therapy with Lab; 34.612, 34.614; DPT
2006  Models & Measurements of Disability; 34.510; Graduate level elective

Guest Lectures
1999-Present  Heart Rate Variability Lecture (1) in Human Factors (Spring ScD in Ergonomics)
2007-2012  Biomechanics Lectures (2-3) in Physical Therapy Interventions I (Fall DPT)
2010-2011  Diagnostic Imaging Lectures (2) (Fall DPT)
2007-2010  Cardiopulmonary Pathology Lectures (2-3) in Med/Surg Conditions (Fall DPT)
2007-2010  Creation / ID / Evolution Lecture in World Religion Philosophy Course
2006-2011  Heart Rate Variability & Integrative Physiology Lecture (1) in Introduction to Biomedical Engineering (Fall PhD in Biomedical Engineering)
2001-2006  Physical Therapy Management of Chronic Pain in Hospice Nursing Course

2. Other Activity & Accomplishments Related to the Instructional Function

Doctoral Dissertation / Master’s Thesis Advising & Committees
2008 – Present  Naveed Zaidi, PhD Student in Biomedical Engineering (Advisor)
2009 – 2010  Joshi Krishna, MS in Biomedical Engineering (Advisor)
2006 – 2007  Pranav Parikh, PhD in Biomedical Engineering (Advisor)
2005 - 2007  Jeremy Bowman, MS in Biomedical Engineering (Advisor)
2005-2006  BongKyoo Choi, ScD in Work Environment, Dissertation (Committee)

Doctorate in Physical Therapy Research Project Advising (Completed Projects)
2012  Thomas Sniezek, Pulse Transit Time Variability in Supine & Standing
2012  Kim Como, Ventilatory Response to Graded Exercise
2012  Marielle Jensen-Battaglia, Control as a Definition of Disability
2010  Alana Runge; Measuring Disability in Patients with Chronic Heart Failure: Are we missing the environment?
2010  Kyle Coffey, Eric Reger, Megan Williams; Transitional changes in chest wall motion from rest to exercise in patients with COPD: review and clinical implications.
2009  Grant Patee, Shawn Regan, Kenneth Stokes; Heart rate variability responses to soft tissue and joint mobilization to the thoracic spine.
   Co-Advisor with Dr. Connie Seymour
2008  Ryan Hurley, Sean Allen; Influence of Autonomic State on Heart Rate Turbulence
2007  Anne Walsh; Methodological Considerations for Interpretation of Heart Rate Variability as a Prognostic Index Following Myocardial Infarction
2007  Amy Benoit, Justin Chapman & Nikki Latta; Stress, Burnout and Physiological Adaptations: Environmental and Individual Factors in Students; Co-Advisor with Dr. Barbara Cocanour
2006  Catherine Eria & Kathleen Rennie; Effect of Inspiratory Muscle Training in Patients with Chronic Obstructive Pulmonary Disease: A Meta Analysis
2004  Joseph Coughlin, Jennifer Wangia & Cynthia Whelan; Inter rater Reliability and Validity of Maximal Inspiratory Pressure Measurement with a Magnehelic Gauge: A Simulation Study
2003  Julie Attardo, Michelle Hoffman, Erica Keele & Stephen Poulin; Novel Approach for the Six-Minute Walk Test: A Simulation Study

Continuing Education Workshops Conducted/Organized

- **Chronic Heart Failure: Unified Physiological & Clinical Perspectives for Clinical Decisions.** Home Health Rehab Managers at Marriott, Westboro, Massachusetts, November 2009.
- **Customization of Rehabilitation for Medically Complex Patients.** Home Health Rehab Managers, Inc at Caritas Norwood Hospital, Norwood, Massachusetts, March 2007.
- **Job Stress, Chronic Disease and Heart Rate Variability: Measuring a New Pathway of Work-related Chronic Disease Risk,** a Nordic Advanced Training Institute (NIVA) workshop at the National Institute of Occupational Health (AM1) in Copenhagen, Denmark, June 2006.
- **Current Practice and Innovative Perspectives in Medical Complexity based on Cardiac & Pulmonary Conditions: Making Basic Decisions,** Professional Health & Education Seminars, Crowne Plaza Hotel, Hartford, CT, 2006; Wyndham Andover Hotel, 2005; Crowne Plaza Hotel, Hartford, CT, 2006; Crowne Plaza Hotel, Nashua NH, 2005.

E. SERVICE ACTIVITY

1. Community Activities Related to Professional Field (past 3 years)

2012  Stress EcoPhysiology & Heart Disease Risk
       Clinical Laboratory & Nutritional Sciences Research Symposium
       UMass Lowell
2012  Fatigue: A symptom of morbidity, a sign of life
       Dufualt Lecture, UMass Memorial Hospital
2012  Chronic Heart Failure: What, When and How to Monitor in the Home
       Presentation to Lawrence Home Health VNA Staff Appreciation Dinner
2011  Cardiopulmonary Cases Q&A
       Presentation at Whittier Rehabilitation Hospital, Haverhill, MA
2011  WHO – ICF in Physical Therapy Education, Research & Practice
Presentation at Lahey Clinic, Burlington, MA

2. Committee Activities

College or University Level

2013 – Present  
Research Committee, College of Health Sciences

2008 – 2013  
School of Health & Environment Leadership Team
Bi-Weekly meetings for College policy, procedure, assessment

2008 – 2010  
Master Planning Committee – Campus Wide

2008 – 2009  
South Campus Space Committee

2009  
School of Health & Environment Dean Search Committee

2008  
Vice Provost for Undergraduate Education Search Committee

2007 –2008  
Director, General Education Committee
Included writing a section for NEASC Accreditation

2006 – 2008  
Member, Undergraduate Policy Committee

2003 – 2008  
Senator, Faculty Senate

2006 – 2007  
Member, General Education Committee

Department Level

2012 – 2013  
Chair, Faculty Search Committee

2008 – Present  
DPT Curriculum Committee

2008 – Present  
Exercise Physiology Curriculum Committee

2010 – Present  
Faculty Search Committee

2008 – 2012  
Program Director, DPT Program

2008  
Chair, Faculty Search Committee

2006 – 2008  
Chair, Exercise Physiology Curriculum Committee

2003 – 2008  
Research Coordinator

1998 – 2006  
Member, Exercise Physiology Curriculum Committee
UNIVERSITY OF MASSACHUSETTS LOWELL
COMPREHENSIVE PROFESSIONAL VITAE
(Full-Time Faculty/Librarians)
DATE: 8/15/2014

Ferrara Cynthia M
Department of Physical Therapy/Exercise Physiology, College of Health Sciences
Associate Professor

EDUCATION AND ACADEMIC QUALIFICATIONS

Education

1994  Ph.D., Exercise Physiology. The Ohio State University.
Dissertation: The Effects of Exercise Training on the Glucose Transport System in SHHF/Mcc-faCP Rats.

1988  M.S., Physiology. The Pennsylvania State University.

1982  B.S., Physical Therapy. Boston University. Magna Cum Laude

Academic Experience

2010-Present  Director of Exercise Physiology Program, University of Massachusetts Lowell, Lowell, MA.

2009-Present  Associate Professor, Department of Physical Therapy, University of Massachusetts Lowell, Lowell, MA.

2003-2009  Assistant Professor, Department of Physical Therapy, University of Massachusetts Lowell, Lowell, MA.

1999-2003  Assistant Professor, Department of Medicine, Division of Gerontology, University of Maryland, Baltimore, MD.

1998-1999  Post-Doctoral Fellow, Department of Medicine, Division of Gerontology, University of Maryland, Baltimore, MD.

1994-1998  Post-Doctoral Fellow, Experimental Diabetes, Metabolism, and Nutrition Section, National Institutes of Health, Bethesda, MD.

1990-1994  Graduate Teaching Assistant, Program in Exercise Physiology, The Ohio State University, Columbus, OH.

1Dates in bold face indicate work undertaken or published since appointment as an assistant professor at University of Massachusetts Lowell.
1988-1990  Research Assistant, USDA Human Nutrition Research Center on Aging, Tufts University, Boston, MA.

1985-1988  Graduate Laboratory Assistant, Noll Laboratory for Human Performance Research, The Pennsylvania State University, University Park, PA.

Other Professional Experience

1984-1987  Physical Therapist, Rehabilitation Hospital for Special Services, Pleasant Gap, PA.

1982-1983  Physical Therapist, Charleston Area Medical Center, Memorial Division, Charleston, WV.

PROFESSIONAL ACTIVITIES

Professional Association Participation: Presentations (Refereed)


2012  C.M. Ferrara, L. Donigian, J. Lorden, J. Turner, M. Read. Perceived stress and

2011  

2011  

2011  

2010  

2010  
C.M. Ferrara, D.M. Murphy, P. Murray. Creating campus partnerships to increase physical activity: The Healthy Campus Campaign. Presented at the American College of Sports Medicine Annual meeting, Baltimore, MD (poster presentation).

2009  

2008  
D.M. Murphy, C.M. Ferrara. A model for campus partnerships for better health. Presented at the American Public Health Association Annual meeting, San Diego, CA (oral presentation).

2008  
D.M. Murphy, C.M. Ferrara. Perceptions of adolescents and community informants: A qualitative analysis of overweight in childhood. Presented at the American Public Health Association Annual meeting, San Diego, CA (oral presentation).

2008  
<table>
<thead>
<tr>
<th>Year</th>
<th>Authors</th>
<th>Title</th>
<th>Conference Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>C.M. Ferrara, G.D. Holman, S.W. Cushman</td>
<td>Effects of isoproterenol on GLUT4 trafficking in rat adipose cells</td>
<td>American Diabetes Association annual meeting, Boston, MA (poster).</td>
</tr>
<tr>
<td>1995</td>
<td>C.M. Ferrara, W.M. Sherman, N. Leenders, S. McCune, K. Roehrig</td>
<td>Exercise training and the glucose transport system in SHHF/Mcc-fa&lt;sup&gt;−/−&lt;/sup&gt; rats</td>
<td>American College of Sports Medicine Annual meeting, Minneapolis, MN (oral presentation).</td>
</tr>
<tr>
<td>1994</td>
<td>C.M. Ferrara, W.M. Sherman, S. McCune, and K. Roehrig</td>
<td>The glucose transport system in SHHF/Mcc-fa&lt;sup&gt;−/−&lt;/sup&gt; rats</td>
<td>Obesity, Diabetes, and Insulin Resistance: Implications from Molecular Biology, Epidemiology and Experimental Studies in</td>
</tr>
</tbody>
</table>
Humans and Animals. 29th Research Symposium and International Congress on Obesity Satellite Conference, Boston, MA (poster).


Professional Association Participation: Presentations (Non-Refereed)


2007  C.M. Ferrara, E. Hollingsworth. Physical characteristics and incidence of injuries in adult figure skaters. 12th Annual Congress of the U.S. Figure Skating Sports Medicine Society, Spokane, WA. (oral presentation).

2005  C.M. Ferrara. Adult skating: The possibilities are endless! 10th Annual Congress of the U.S. Figure Skating Sports Medicine Society, Portland, Oregon. (poster).


Professional Association Participation: Conference talks and symposiums

2012  UMass Center for Clinical and Translational Science, Community Engagement and Research Symposium, Worcester, MA. Moderator and presenter for the breakout session “Increasing Study Recruitment and Retention: Working with Communities to Use Social Media” with Leland Ackerson.

2010  C. M. Ferrara, D.M. Murphy. Creating partnerships to increase physical activity. Presented as a mini-symposium for the New England American College of Sports Medicine Annual meeting, Providence, RI.


2005  C.M. Ferrara. Obesity and weight gain in the college student population. Presented as a tutorial talk, New England American College of Sports Medicine Annual meeting, Providence, RI.
Professional Association Participation: Offices held and Committee Service

2012-Present  Board member at large (elected position), New England American College of Sports Medicine.


- Coordinated the solicitation and review of nominees for the Honor Award and the scholarship applications, and notified the recipients.
- Worked with co-chair on new awards (New Investigator Award, Graduate Student competition).

2012-2015  Member, Office of Museum, History, and Archives Committee, American College of Sports Medicine.

- Attend yearly meeting at National conference and conference calls as needed.

2007-2014  Member, Research and Education Subcommittee, Sports Sciences and Sport Medicine Committee, U.S. Figure Skating Association. Vice Chair, 2007-2013.

- Organized the annual scientific meeting of sports medicine professionals involved in figure skating (January 2008, 2009)
- Reviewed sports medicine-related articles for SKATING magazine
- Assisted in the development of criteria and procedures to review research grants submitted to US Figure Skating
- Reviewed research grants submitted to US Figure Skating (2009, 2011)

2006-2008  Board member at large (elected position), New England American College of Sports Medicine.

Chair, Awards and Scholarships committee, New England American College of Sports Medicine.

- Coordinated the solicitation and review of nominees for the Honor Award and the scholarship applications, and notified the recipients.

2004-2007  Board of Directors (President (2007), Vice President (2006), Board member (2004-2006), elected positions), U.S. Figure Skating Sports Medicine Society.

- Coordinated the revision of the bylaws of the Sports Medicine Society.
- Organized the annual scientific meeting of sports medicine professionals involved in figure skating (January 2007).

Current Professional Memberships

Fellow, American College of Sports Medicine
American Physiological Society

Reviewer for the following journals, book publishers, grant agencies, and tenure

2014  California Journal of Health Promotion
Endocrine Research

External reviewer for University of Hartford candidate for promotion and tenure

2013  California Journal of Health Promotion
Journal of Athletic Enhancement
Journal of Physical Activity and Health
SciTechnol

External reviewer for University of New Hampshire candidate for promotion and tenure

2012  Physiotherapy
California Journal of Health Promotion

2011  Reviewer of grants for US Figure Skating
Physiotherapy

2010  California Journal of Health Promotion
Reviewer of grants for Diabetes UK
Obesity Research

2009  Research Quarterly for Exercise and Sport

2008  Metabolism Clinical and Experimental
Reviewer of grants for US Figure Skating

2007  Applied Physiology, Nutrition, and Metabolism
Sports Medicine
Clinical Endocrinology
Tohoku Journal of Experimental Medicine

2006  Clinica Chimica Acta.
International Journal of Medical Sciences
Reviewer of grants for Diabetes UK

2005
Clinical Medicine and Research

2004
Journal of Nutritional Biochemistry
Reviewer of textbook for Lippincott, Williams, and Wilkins

AWARDS, FELLOWSHIPS, AND SABBATICALS

2010 Nominated and approved for Fellowship by the American College of Sports Medicine.


2002 Invited participant at the Summer training Course in Experimental Aging Research, Ann Arbor, MI.


RESEARCH

Awarded Grants and Contracts

2013 Enhancing Student Learning and Active Engagement in an Undergraduate Research Methods Course. College of Health Sciences, 2013 Teaching and Learning Grant. $1000

2011 Feasibility and Effectiveness of a Social Networking Site on Increasing Physical Activity in Adults. 2011 School of Health and Environment Seed Grant. (Co-investigators L.Ackerson and D. Murphy). $12800

2011 Enhancing student learning and engagement by using laboratory-based learning modules: A case study of Exercise Physiology II laboratory classes. 2011 UMass Lowell ECHO360 Lecture Capture Grant. $2500


2011 A community-based social networking intervention to increase walking in dog
<table>
<thead>
<tr>
<th>Year</th>
<th>Project Description</th>
<th>Grant Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>GRGA Graduate Student Association Research grant to Julie Lorden (C. Ferrara, Advisor)</td>
<td>$1300</td>
</tr>
<tr>
<td>2009</td>
<td>Healthy Campus, Healthy Communities. School of Health and Environment Seed Grant. Co-Principal Investigator (D. Murphy, Co-PI).</td>
<td>$3000</td>
</tr>
<tr>
<td>2009</td>
<td>Strategies for Success in the Freshman Year: Improving Academic Performance and Student Retention in the Exercise Physiology Program. UMass Lowell Council on Teaching and Learning grant. Principal Investigator.</td>
<td>$2250</td>
</tr>
<tr>
<td>2009</td>
<td>Biomarkers of stress, injury, and athletic performance. School of Health and Environment Creativity fund award.</td>
<td>$1,000</td>
</tr>
<tr>
<td>2007</td>
<td>A Model for Campus Partnerships for Better Health. School of Health and Environment Signature Initiative, University of Massachusetts Lowell. Co-Principal Investigator (D. Murphy Co-PI).</td>
<td>$15,000</td>
</tr>
<tr>
<td>2006</td>
<td>Physiological markers of stress and their relationship to health and disability. School of Health and Environment Seed Grant, University of Massachusetts Lowell. Principal Investigator.</td>
<td>$5,000</td>
</tr>
<tr>
<td>2006</td>
<td>School of Health and Environment Creativity fund award.</td>
<td>$500.</td>
</tr>
<tr>
<td>1999</td>
<td>Aging and cellular mechanisms for insulin action after exercise training, V.A. Merit Review Entry Program. Principal Investigator.</td>
<td>$537,400</td>
</tr>
</tbody>
</table>
Submitted Grants and Contracts (in review or not awarded):

2011  Healthy Campus, Healthy communities: Creating partnerships to improve the walkability and bikeability of the Lowell community. Lowell General Hospital 2011 Community Health Initiatives Grant. Co-Investigator.


Academic and Professional Publications

Refereed Journal Publications:


2009  C.M. Ferrara. 2009. The college experience: Weight gain, physical activity, and


Published Abstracts:


**Book Chapters**


**Manuscripts in Preparation/Review:**

**INSTRUCTION RELATED ACTIVITIES**

<table>
<thead>
<tr>
<th></th>
<th>38.417</th>
<th>38.406</th>
<th>38.408*</th>
<th>38.421</th>
<th>38.101</th>
<th>34.609</th>
<th>34.616</th>
<th>34.626</th>
<th>34.655</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall 03</strong></td>
<td>U</td>
<td>E=23</td>
<td></td>
<td></td>
<td></td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring 04</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall 04</strong></td>
<td>U</td>
<td>E=23</td>
<td></td>
<td></td>
<td></td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring 05</strong></td>
<td>U</td>
<td>E=27</td>
<td>U</td>
<td>E=27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall 05</strong></td>
<td>U</td>
<td>E=24</td>
<td></td>
<td>U</td>
<td></td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring 06</strong></td>
<td>U</td>
<td>E=29</td>
<td>U</td>
<td>E=29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall 06</strong></td>
<td>U</td>
<td>E=28</td>
<td></td>
<td>U</td>
<td>E=2</td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring 07</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall 07</strong></td>
<td>U</td>
<td>E=27</td>
<td></td>
<td></td>
<td></td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring 08</strong></td>
<td>U</td>
<td>E=41</td>
<td>U</td>
<td>E=41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall 08</strong></td>
<td>U</td>
<td>E=41</td>
<td></td>
<td></td>
<td></td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring 09</strong></td>
<td>U</td>
<td>E=36</td>
<td>U</td>
<td>E=36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall 09</strong></td>
<td>U</td>
<td>E=36</td>
<td></td>
<td>U*</td>
<td>E=60</td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring 10</strong></td>
<td>U</td>
<td>E=51</td>
<td>U</td>
<td>E=51</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall 10</strong></td>
<td>U</td>
<td>E=51</td>
<td></td>
<td>U</td>
<td>U*</td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring 11</strong></td>
<td>U</td>
<td>E=57</td>
<td>U*</td>
<td>E=54</td>
<td>U</td>
<td>E=1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall 11</strong></td>
<td>U</td>
<td>E=52</td>
<td></td>
<td>U</td>
<td>U*</td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring 12</strong></td>
<td>U</td>
<td>E=68</td>
<td>U*</td>
<td>E=68</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall 12</strong></td>
<td>U</td>
<td>E=67</td>
<td></td>
<td>U</td>
<td>U</td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring 13</strong></td>
<td>U</td>
<td>E=69</td>
<td>U*</td>
<td>E=69</td>
<td>U</td>
<td>E=5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall 2013</strong></td>
<td>U</td>
<td>E=67</td>
<td></td>
<td>U</td>
<td>U</td>
<td>G</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring 2014</strong></td>
<td>U</td>
<td>E=82</td>
<td>U*</td>
<td>E=82</td>
<td>U</td>
<td>E=9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Responsible for supervising teaching assistants
U=Undergraduate    G=Graduate    E=Enrollment
Bold indicates that student evaluations were conducted
Courses in Undergraduate Exercise Physiology Program:

38.101 Freshman Seminar

- Developed and implemented a new first semester course for freshman in the Exercise Physiology major.

- Assisting with development of appropriate activities for smaller Freshman and New Transfer Student Seminar sections in the Fall of 2014 (from 120 students to 6 classes of approximately 20 students).

38.417 Research Methods in Exercise Physiology

- Significantly revised the course in the summer of 2011 as a blended course. Additional revisions of the course occurred in the Fall 2012, with new class assignments and evaluations.

- Added mini research projects in the Fall of 2013, including development of a research proposal and informed consent, completion of Human Subjects Training, recruitment of subjects, data collection and statistical analysis, and presentation of results.

38.406 Exercise Physiology II

- Revised the course to incorporate more information/case studies involving healthy subjects, not just athletes.

- Created new lectures and topics for discussion, including Respiratory Diseases and Exercise, Osteoporosis and Arthritis, and Effects of Genetics on Exercise Training-induced adaptations.

38.408 Exercise Physiology II laboratory

- Developed laboratory-based learning videos and modules to enhance the learning experience in the laboratory classes.

- Developed criteria for practical examinations and laboratory activity competencies.

- Collaborated with Athletics and Campus Recreation Center to increase the opportunities for student learning in the laboratory activities.

- Worked with TAs to include a short lecture or video as part of the laboratory class, so students can participate more in the laboratory sessions and learn more from the activities.
38.421 Directed Study in Health Promotion

Spring 2014. Supervised Allison Martin, Daniel Pomerleau, Cristi Contreras Diaz, Erin Chenette, Jenna Vraibel, Jessica LeBlanc, Anne Sinclair, and Kaela McLaughlin on various research projects. Cristi and Kaela are working on Honors Program-related projects. Two posters will be presented at 2014 Student Research Day.

Allison, Erin, Jenna, Jessica, Anne, and Kaela worked on determining self-selected exercise intensity of two free exercise apps. This information will help in the development of research to start this summer.

Cristi Contreras Diaz examined the literature on high protein diets, and is also helping to develop an IRB protocol to examine the effectiveness of free exercise apps in reducing cardiovascular risk factors. She will continue work on this project in the Summer 2014, as part of her Honors project.

Dan Pomerleau worked on analysis of data from a project examining barriers and facilitators to walking in dog owners.

Fall 2013. Supervised Huy Le, Rudolph Planter, Alex Wunderlich, Linda Castro, and Rachel Bromberg, who worked on various research projects.

Rudolph and Alex observed baseline testing of the hockey team, and analyzed data from NHL combine in 2010.

Linda and Rachel worked on finding online information and publications on best practices for sustainability of campus bike share programs. They also interviewed the bike share coordinator at UMass Lowell (Rachel Iverson) and developed an online survey, which was sent out to campus bike share coordinators in the U.S. Co-op and directed study students will start analyzing the results of the survey in the Fall of 2014.

Huy Le worked on evaluation of free exercise apps on Itunes, to determine the “best” ones to use to promote physical activity in college students.

Spring 2013. Supervised Rebecca Krieger, Kristin Simone, Celine Loiselle, Alexa Leclerc, and Sharon Marley, who worked on various research projects. Rebecca also completed an honors thesis based on results of the project “Feasibility and Effectiveness of a Social Networking Site on Increasing Physical Activity in Adults”.

Fall 2012. Supervised Casey Moran, who assisted with the project “Feasibility and Effectiveness of a Social Networking Site on Increasing Physical Activity in Adults” in the Summer and Fall 2012.
Spring 2011. Supervised Gregory Titus, who assisted with additional data analysis of “Stress and Athletic performance” project and assisted in the writing of a conference abstract.

Fall 2011. Supervised Emmanuel Begon, who began initial data analysis of results of baseline tests for the Lowell Police Academy and performed relevant literature searches on physical characteristics and physical training of police and other emergency personnel.

Spring 2011. Supervised Brandon Lyons, who assisted with data analysis of “Stress and Athletic performance” data. Brandon also presented a summary of his project to senior EP students and faculty.

Spring 2010. Supervised Janki Javia who assisted with a “Take the Stairs” research project. Janki developed flyers to encourage people to take the stairs as a form of physical activity.

Fall 2010. Supervised Jenny Savann, who researched campus and community bike share programs. Jenny also developed a poster presentation summarizing her work.

Fall 2006. Supervised Joanna Daluze, who conducted an assessment of the UML Field Hockey Team Conditioning Program during the summer and fall of 2006. Joanna also developed a presentation on the female athlete triad and the importance of healthy eating for the field hockey team and coaches.

Fall 2006. Supervised Sarah Buccos, who observed and later assisted strength and conditioning coaches with the spring and summer UML Hockey Team Conditioning Program. Sarah also developed a presentation on protein supplementation for the hockey team and coaches.

Fall 2005. Supervised Cheryl Nobrega, who assisted with the validation and reliability testing of three different pedometers, used to evaluate daily physical activity.

Courses in the Doctor of Physical Therapy Program:

34.609 Medical/Surgical Pathology

-Added a journal club assignment, to help students to develop a greater understanding of diseases being discussed in class.

- Incorporated evidence-based practice project to improve students’ ability to locate the best research or evidence, evaluate it, and utilize the information in development of a specific treatment program.

-Added case study assignments to the course to increase student learning.
3.616 Research Methods in Physical Therapy

-Incorporated evidence-based practice project to improve students’ ability to evaluate and utilize research in daily practice (Hooked on Evidence project).

3.655 Independent Study/Research Methods in Physical Therapy

-Supervised 2 Advanced Master’s in Physical Therapy students in the development of research projects.

3.626 Geriatric Physical Therapy

-Added pharmacology-related case studies to enhance student learning.

Other activity and accomplishments related to instructional function

2014  Doctoral general exam committee member.  Michael Dellogono, UMass Lowell Biomedical Engineering Technology program.

2007-2009  Doctoral general exam committee member.  Peter Megdal, UMass Lowell Biomedical Engineering Technology program.

2003-present  Undergraduate advisor for Exercise Physiology majors.

Research Project Advising for Doctor of Physical Therapy Program

2012-2014  Brianne Bozzella and Kimberly Gada;  A community-based social networking intervention to increase walking in dog owners.  (Co-advisor with D. Murphy)

2011-2013  Celine DiMaggio, Heather Jones, Shannon McBride, Danielle O’Shea;  A community-based social networking intervention to increase walking in dog owners. Analysis of barriers to dog walking in two Massachusetts communities.  (Co-advisor with D. Murphy)

2010-2012  Erin Foley and Corinne Lee;  The Healthy Campus Campaign;  Factor analysis of yearly assessment surveys.  (Co-advisor with D. Murphy).

2010-2012  Jennifer Raymond and Allison Buckley;  Changes in Secretory Immunoglobulin A and Psychological Stress in Collegiate Level Track Athletes Over the Course of a Competitive Season

2009-2012  Pamela Silvia;  Stress, athletic competition, and salivary cortisol levels.

2009-2011  Julie Lorden, Matthew Read, Joshua Turner, and Laura Donigian;  Physiological markers of stress, risk of injury and illness, and athletic performance in track and field athletes.

2008-2010  Jaclyn Netishen, Lisa Marchese, Joyanna Currie;  The impact of a bike share program on the health of individuals.  (Co-Advisor with D. Murphy).
2007-2009 Bridgette Thompson and Joel Melville; *Physiological markers of stress.*

Cheryl Nobrega and Faina Dulfan; *Health behaviors in students in health-related majors compared to students in other majors.*

2006-2008 Lori Reible, Michelle Kampf, and Erica Baldasaro; *The effects of the UML DPT program on first year students’ activity levels and body composition.*

2004-2006 Eric Campbell, Kristen Cernuda, Jessica Kent, and Nicole Pelletier; *Body composition and exercise habits of college freshman: Changes in the first year.*

2004-2006 Elvira Karakozova, Irina Shneyderman, Sarah Mitchell; *Effects of yoga on stress levels, heart rate, and blood pressure in college students.*

**Participation in UMass Lowell Faculty Institutes and Continuing Education**

2007 Interdisciplinary (ID) approaches assessment.

2006 Learning-centered teaching: Focus on outcomes.

2005 The course portfolio: Focus on student outcomes of an active learning strategy


**SERVICE ACTIVITIES**

**University and Department Committees**

*Physical Therapy Department*

2014 AQAD Committee for Exercise Physiology Program

2013-present Physical Therapy Department representative to Honors Program

2013-2014 Physical Therapy Program Search Committee, Member.

2012-2013 Physical Therapy Program Search Committee, Member.

2010 Ad-hoc committee to discuss DPT student appeal of dismissal

2009-present Transfer Coordinator, Exercise Physiology Program

2008-present Faculty advisor for UMass Lowell College Bowl Team

2008-2013 Physical Therapy Department representative for UML Faculty Senate

2007-2008 Exercise Physiology Program Search Committee, Member.

2004-present Exercise Physiology Program Curriculum Committee, Member (Chair, 2009 to present).

2003-present Physical Therapy Program Curriculum Committee, Member.

2003-present Physical Therapy Admissions Committee, Member.
School of Health and Environment/College of Health Sciences

2012-present Undergraduate Program Committee, Member
2010-present Research Committee, Member
2010 Public Health Program Committee, Member
2007-2009 School of Health and Environment Space Committee, Member
2006-2007 School of Health and Environment Mission Committee, Member
2004-2005 Administrative and Faculty Space Committee, Chair
2003-2004 College Advancement Committee, Member

University of Massachusetts Lowell

2012 Member, NEASC (New England Association of Schools and Colleges) Assessment Sub-Committee.
2010 Panelist for “Teaching First Year Students: Lessons Learned and New Directions.” Nov. 17, 2010.
2009 Committee on Research, Scholarship, and Creative Work, UMass Lowell Strategic Planning Commission.

Other Service to the University

2014 Volunteer for University “Welcome Day”
2014 Volunteer for Admissions event at the UMass Lowell Inn and Conference Center.
2013 Volunteer for College of Health Sciences Freshman reception and dinner at UMass Lowell Inn and Conference Center.
2013 Volunteer for University Open House in Tsongas Arena.
2013 Volunteer for University “Welcome Day”
2013 Volunteer for Admissions event at the UMass Lowell Inn and Conference Center.
2012 Volunteer for University Open House in Tsongas Arena.
2012 Volunteer for University “Welcome Day”
2012 Volunteer for School of Health and Environment Admitted Student Day.
2011 Volunteer for University Open House in Tsongas Arena.
2011 Volunteer for University “Welcome Day”
2010 Volunteer for University Open House in Tsongas Arena.
2009 Volunteer for University Open House in Tsongas Arena.
2009 Presenter for School of Health and Environment incoming Freshman program.
2007 Presenter for the undergraduate Honors program seminar class.
2007 Guest lecturer for Department of Work Environment class, Human Factors.
2006 Volunteer for School of Health and Environment “Snapshot Weekend”.
2004 Volunteer for University Open House in Tsongas Arena.
Community Activities Related to Professional Field

2013  Helped with testing for 2013 US Figure Skating Association STARS Program (Standardized Testing of Athleticism to Recognize Skaters). I also recruited a senior Exercise Physiology student to help with testing.

2012  Helped with testing for 2012 US Figure Skating Association STARS Program (Standardized Testing of Athleticism to Recognize Skaters).

2011  Helped with testing for 2011 US Figure Skating Association STARS Program (Standardized Testing of Athleticism to Recognize Skaters) at the Reggie Lewis Track and Athletics Center at Roxbury Community College. I also recruited 3 DPT students and 2 Exercise Physiology students to help with the testing.


2005-2006  Mentor to undergraduate female students in the College of Health and Human Development at the Pennsylvania State University, as part of the Women’s Leadership Initiative Program.

Lay Publications and Media Presentations Related to Professional Field

2007  Guest on the WUML Sunrise Focus on Health show, to discuss the “Healthy Campus Campaign.”

Comprehensive Professional Vitae

August 2014

Name: Fox, Michele K.
Department: Department of Physical Therapy
College: College of Health Sciences
Rank: Lecturer
Title: Associate Director of Clinical Education
Appointment date: January 23, 2012

Education and Academic Qualifications

Education
2006  Doctor of Physical Therapy
University of Massachusetts Lowell  Lowell, MA

1994  Master of Science, Physical Therapy
University of Massachusetts Lowell  Lowell, MA

1991  Bachelor of Arts, Biological Sciences
Cornell University  Ithaca, NY

Academic Experience
2012-present  Associate Director of Clinical Education, Lecturer
Department of Physical Therapy
University of Massachusetts Lowell, Lowell, MA

2008-2011  Adjunct Faculty
Department of Physical Therapy
University of Massachusetts Lowell, Lowell, MA

2007-2008  Interim Program Director/ Department Chair
Physical Therapist Assistant Program
Hesser College, Manchester, NH

2004-2007  Associate Professor
Physical Therapist Assistant Program
Hesser College, Manchester, NH

2000-2004  Part time Faculty Member
Physical Therapist Assistant Program
Hesser College, Manchester, NH

Professional Activities

Professional Association Membership
1992- present  American Physical Therapy Association (APTA) member
2002- present  APTA Education Section
2011-present  Clinical Education SIG Joined 5/2/13
2011-present  APTA Massachusetts Chapter
1992- present APTA Orthopedic/ Sports Physical Therapy Section
1997- 2011 APTA New Hampshire Chapter
1992-1997 APTA Massachusetts Chapter
1997- present National Strength and Conditioning Association (NSCA) member
2013- present American College of Sports Medicine (ACSM) member

Professional Licenses and Certifications
2012- present Credentialed Clinical Instructor
1994- present Massachusetts Physical Therapy license #10059
1997- present New Hampshire Physical Therapy license #2129
1997- present NSCA Certified # 976875

Editorial/Peer Reviewer
2011 Reviewer for Human Kinetics Manuscript, *Handbook of Drugs Used in Rehabilitation*. Book was published August 2013

Professional Awards and Recognitions
2014 Physical Therapy Department Teaching Excellence Award
2014 Inducted into Omicron Delta Kappa Society
2013 Excellence in Innovation and Transformational Education Award
1994 Deans Award at the University of Massachusetts Lowell

Invited Professional Presentations
2014 Keynote Speaker for Omicron Delta Kappa induction ceremony. Spoke about leadership.
2013 “Bridging the Generational Gaps: How we can get the best out of and for our students” CHS retreat May 2013
2005 Working with the PT/ Providing Safe patient care for HHAs
2004 Fall Prevention for the Eldercare Professional Networking Group
2004 Falls Risk Reduction for Mary Immaculate Health Care
2004 Foundations in Electrotherapy and Ultrasound, co-instructor for Life Care Centers, Colorado

Non-teaching Activities Professional Clinical Experience
2012- present Physical Therapist, Dracut Physical Therapy Dracut, MA
2009-2012 Clinic Manager, Northeast Rehabilitation Hospital Network Pelham, NH
2007-2009 Senior Physical Therapist, Northeast Rehabilitation Hospital Network Pelham, NH
2000-2007 Physical Therapist, All Care VNA North Andover, MA
1997-2000 Senior Physical Therapist, Performance Rehab, Nashua, NH
1994-1997 Senior Physical Therapist, Occupational Health + Rehabilitation Inc. Waltham, MA
CCCE (Center Coordinator for Clinical Education). Consultant for GWARC (Greater Waltham Association for
Consultative and Advisory Positions Held

Jan. 2012- present  Member of New England Consortium-Academic Coordinators Clinical Education (NEC-ACCE); Website and Technology committee
May 2009- present  Advisory Board, UMass Lowell Physical Therapy Program
2001-2004  Advisory Board, Hesser College Physical Therapist Assistant program

Research

Postural Alterations Increase Oxygen Consumption During Non-impact Cardiovascular Cross-training

I was the PI however the research was performed by the employees of Cybex and EP Senior Practicum student Erin Sullivan. I reviewed the protocol and submitted the IRB then provided over site for the student doing the research.

- Poster presented by Cory Hofman of Cybex at the 60th Annual Meeting and 4th World Congress on Exercise is Medicine of the American College of Sports Medicine May 2013

The reduction of metabolic cost while using handrail support during inclined treadmill walking is dependent on the handrail-use instruction

I was the PI however the research was performed by the employees of Cybex and EP Senior Practicum students Hagop Abkarian and Connor Dougherty. I reviewed the protocol and submitted the IRB then provided over site for the students doing the research.


The effect of speed and incline on oxygen consumption at a constant power output during sub-maximal exercise on a non-impact cardiovascular cross trainer

In progress; I am the PI however the research is being performed by employees of Cybex and EP Senior Practicum students Ross Robarge and Rachel Bromberg. I reviewed the protocol and submitted the IRB and will provide over site for the students doing the research.
Patello-Femoral Pain Syndrome – A comparison of two divergent neuromuscular treatment approaches.
In progress. IRB revisions being completed. Working along with Keith Hallbourg and the staff at PT Plus @ Health Alliance Hospital Burbank campus, Fitchburg, MA

Instructional Related Activity

Undergraduate Courses:
38.301 Junior Seminar
Spring 2014; Spring 2012 co-instructor
38.412 Clinical Practicum I and II
Fall 2012- present; Spring 2012 co- instructor
38.418 Senior Seminar
Fall 2012- present; Spring 2012 co- instructor
38.420 Advanced Studies
Summer 2012, 2013, 2014

Graduate Courses
34.607 PT Interventions I lab
Fall 08- present
34.610 Musculoskeletal PT I lab
Spring 09- 2012
34.654 Clinical Education Experience IV
Spring 2012- present
34.653 Clinical Education Experience III
Fall 2012, Fall 2013
34.652 Clinical Education Experience II
Summer 2012- present
34.650 Clinical Education Experience I
Summer 2012- present
34.615 Clinical Education I Seminar /Clinical Education Fieldwork I
Spring 2013
34.635 Clinical Education II Seminar
Spring 2013
34.644 Clinical Education Fieldwork II
Spring 2013

Academic Advising
2012-present Undergraduate Faculty Advisor for Exercise Physiology students

Clinical Education Supervision
2012-present Physical Therapy Clinical Education Experience Site Visits, Fall, Summer and Spring visits

Guest Lecturer
Spring 2014 Intro to Exercise Physiology class 38. 202(2 sections) The Path to becoming a Physical Therapist
Fall 2013 Health Care Issues 34.642- Preparation for the Board Exam
Fall 2013  Shared my lecture “Bridging the Generational Gaps: How we can get the best out of and for our students” with the nursing and English departments
Spring 2013  Junior Seminar 38.301 - Cultural Awareness
Spring 2013  Intro to Exercise Physiology class 38.202 (2 sections) The Path to becoming a Physical Therapist
Fall 2012  Freshman Seminar 38.101 for EP - Physical Therapy
Spring 2012  Intro to Exercise Physiology class 38.202  Physical Therapy

Additional Teaching activities
2013-present  Scorebuilders Course Instructor. Prep courses for the National Physical Therapy and Physical Therapist Assistant Exam

Service Activities

Physical Therapy Department Service
2014  UMass Lowell Accepted Student Welcome day for EP students April 12, 2013
2013  Attended and assisted with organizing DPT Department Wheelchair Basketball Game
2014  Guest at the West Middle School Career Fair in Andover Ma to discuss Physical Therapy and Exercise Physiology. March 3, 2014
2014  UMass Lowell Reception for Early Action Students Jan 2014
2014  Non-Tenure Track search committee
2013-present  Became the EP Club faculty advisor
2013  Orientation for DPT students June 2013
2013  UMass Lowell Accepted Student Welcome day for EP students April 6, 2013
2013  Attended DPT Department Wheelchair Basketball Game
2013  Guest at the West Middle School Career Fair in Andover Ma to discuss Physical Therapy and Exercise Physiology. March 12, 2013
2013  New England Consortium of Academic Coordinators of Clinical Education Annual Meeting
2012-present  DPT Professional Review Committee
2012-present  Facebook Coordinator for the PT Department
2012  NEASC committee for PT Department: Undergraduate studies
2012  UMass Lowell Accepted Student Welcome day for EP Students  March 31, 2012
2012  UMass Lowell Accepted Student Welcome Day for PT students  March 3, 2012
2012-present  DPT Curriculum Committee, Department of Physical Therapy
2012- present  Exercise Physiology Curriculum Committee, Department of Physical Therapy
2012  Stecchi SHE scholarship Committee
2012  New England Consortium of Academic Coordinators of Clinical Education Annual Meeting

**College Service**

- 2014  CHS Retreat May 2014
- 2014  Attended the *University Alumni Awards* Dinner April 16, 2014
- 2014  Attended *An Evening with Scholars* March 26, 2014
- 2013  Transformational Education Strategic Planning Sub-Committee
- 2013  Attended College of Health Sciences celebration 9/3/13
- 2013  College of Health Sciences Retreat: gave presentation on Bridging the Generational Gaps: How we can get the best out of and for our students May 21, 2013
- 2013  Attended SHE Research Day May 2, 2013

**University Service**

- 2014  Attended Graduation Ceremonies for undergraduate EP and graduate DPT students May 17, 2014
- 2014  Inducted into Omicron Delta Kappa national Leadership society
- 2014  Attended Community Connections Breakfast
- 2013  Participated in making of YouTube video for Career and Co-op center
- 2013  Attended Graduation Ceremonies for Undergraduate EP students and Graduate DPT students May 18, 2013
- 2013  Attended UML Student Research Day April 23, 2013
- 2013  Attended UML 1st Annual Difference Maker IDEA Challenge
- 2012  Attended SHE Research Day April 27, 2012
- 2012  Attended the 2012 New Faculty Social  February 28, 2012

**Other Service**

- 1995- present  C.A.A.A.N (Cornell Admissions Alumni Ambassador Network) member

**Continuing Education Attended**

- 8/14  Video Capture Workshop
- 4/14  The New England Sports and Orthopedic Rehabilitation Summit 2014: *Advances in Rehabilitation of the Lower Extremity*
- 12/13  Selecting and Organizing Course Content in a DPT curriculum
- 11/13  Evidence Based Practice: Practical Applications for the Clinic
10/13 Educational Leadership Conference in Portland Oregon.

Strengthening the New England Consortium for the Future

2/13 Regional Interdependence. How the body Moves.

11/12 My Patient has a Rotator Cuff Tear: Latest Strategies to Optimize Outcomes

11/12 Developing Centers of Excellence in Clinical Education: an interactive workshop

10/12 Educational Leadership Conference: Cultivating Partnerships from Classroom to Clinic

3/12 The Shifting Health Care, Professional and Educational Environments: Impact on Physical Therapy Education and Clinical Practice

3/12 APTA Clinical Instructor Educational and Credentialing Program

1/12 Living well with Parkinson’s Disease

11/11 Management Development Program Module 1: The Role of the Leader
Module 3: Skills Needed for Effective Communication

10/11 Recent Advances in the Surgical and Rehabilitation Management of the Unstable Shoulder

9/11 Mentoring the Millennial PT/PTA

6/10 PT 2010: Annual Conference and Exposition of the APTA

6/10 3 Day Functional Training Summit

5/09 Evidence Based Rehab Following Rotator Cuff Repair

9/08 The New Hampshire Musculoskeletal Institute’s 15th Annual Symposium

5/08 5th Annual Sports Related Conference on Concussion and Spine Injury

9/07 The New Hampshire Musculoskeletal Institute’s 14th Annual Symposium

9/07 New Approaches to Total Joint Replacement by Northeast Rehabilitation Hospital

7/07 Classroom Management
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/07</td>
<td>2007 Combined Sections Meeting of the APTA</td>
</tr>
<tr>
<td>11/06</td>
<td>Engaging Students Creatively</td>
</tr>
<tr>
<td>10/06</td>
<td>Improving Patient Outcomes: What Clinicians Need to Know</td>
</tr>
<tr>
<td>9/05</td>
<td>The New Hampshire Musculoskeletal Institute’s 12th Annual Symposium</td>
</tr>
<tr>
<td>6/05</td>
<td>PT 2005 Annual Conference and Exposition of the APTA</td>
</tr>
</tbody>
</table>
Curriculum Vitae  Eric G. James, Ph.D.

Associate Professor, Department of Physical Therapy
University of Massachusetts Lowell
540G O’Leary
Lowell, MA 01854
Email: Eric_James@uml.edu
Office (978) 934-4632
Fax (978) 934-3006

EDUCATION

Ph.D., Kinesiology / Motor Control 2006 – 2009
The Pennsylvania State University
Advisor: Karl Newell, Ph.D.
Dissertation Title: Coordination Dynamics in Redundant and Non-Redundant Motor Tasks

Visiting Fellowship Program in fMRI October 2005
Massachusetts General Hospital
Athinoula A. Martinos Center for Biomedical Imaging

M.S., Exercise Science / Motor Behavior 2004 – 2006
University of Houston
Advisor: Charles Layne, Ph.D.
Thesis Title: Effects of Internal and External Focus of Attention on Relative Phase Stability in Rhythmic Bimanual Movements

Feldenkrais Guild of North America

St. John Fisher College

PROFESSIONAL EXPERIENCE

Associate Professor, University of Massachusetts 2014 - Present
Department of Physical Therapy
Lowell, MA

Assistant Professor, University of Texas 2009 - 2014
Department of Health & Human Performance
Brownsville, TX

Graduate Research Assistant 2008 - 2009
Motor Behavior Laboratory  
The Pennsylvania State University  
Advisor: Karl Newell, Ph.D.

Lecturer  
Department of Kinesiology  
The Pennsylvania State University  
Summer 2008

Graduate Teaching Assistant  
Department of Kinesiology  
The Pennsylvania State University, State College, PA  
2006 - 2008

Lecturer  
Department of Health & Human Performance  
University of Houston, Houston, TX  
Summer 2006

Graduate Teaching Assistant  
Department of Health & Human Performance  
University of Houston, Houston, TX  
2004 - 2006

Math/Science Instructor  
ProjectGRAD: a privately and publicly funded  
scholarship program for at-risk urban high school students.  
University of Houston, Houston, TX  
Summer 2005

Instructor of Feldenkrais Method of  
Somatic Education  
Montevideo, Uruguay and Rochester, NY  
1999 - 2004

Instructor of Martial Arts (Bujinkan Ninjutsu)  
Montevideo, Uruguay  
1994-1999

PUBLICATIONS

Peer Reviewed Articles


Curriculum Vitae Eric G. James, Ph.D.


---

*Curriculum Vitae* Eric G. James, Ph.D.
Book Chapter


Reviewed Articles


INVITED PRESENTATIONS


2. Theoretical Approach to Understanding Motor Control, University of North Carolina Wilmington. April 2012


PROFESSIONAL PRESENTATIONS


**PRIOR FUNDING**

PI. Ruth L. Kirchstein Individual Pre-Doctoral Fellowship. $52,329. Submitted December 2006. Revision not submitted due to early completion of doctoral degree.


Start-up funds for Motor Behavior laboratory. University of Texas at Brownsville College of Education. $19,589.55 funded 2009.

Texas Higher Education Assistance Funds for the purchase of Motion Capture equipment. $65,617 funded 2013.

College of Education Dean's Competitive Travel Funding. University of Texas at Brownsville. $993.50 for conference travel. Funded 2013.

PI. 1R03DC013800-01 NIDCD R03 Vestibular Rehabilitation Using Differential Training. Submitted June 2013. Direct costs: $300,000 over 3 years. Not funded

PI. 1R03AG048311-01 NIH R03 Short-term High Variability Training to Enhance Gait in the Elderly. Submitted October 2013. Direct costs $100,000 over 2 years. Not funded.

REVIEWER

Experimental Brain Research

PLoS One

Human Movement Science

Journal of Rehabilitation Research and Development

Motor Control

Lippincott, Williams & Wilkins Publisher

PROFESSIONAL COMMITTEES


College of Education Graduate Curriculum Committee. 2012 – present.

M.S. Thesis Committee, Jose Leal 2012 – present.


Department Undergraduate Curriculum Committee. 2009 – present.

Department Graduate Curriculum Committee. 2009 – present.


Department NCATE and Program Review Committee. 2011 – present.

Department Search Committee Exercise Science Position. 2011 – present.

Department TExES Committee. 2009 – present.

Department Mr. Johnny and Nena Cavazos Committee. 2009 – present.

COURSES TAUGHT

Motor Control (graduate level)
Coordination Dynamics (graduate level)
Kinesiology Laboratory (undergraduate)
Motor Control & Learning (undergraduate)
Biomechanics (undergraduate)
Internship (undergraduate)
Psychology of Sport and Exercise (undergraduate)
Introduction to Sport and Exercise Science (undergraduate)
Self-Defense (undergraduate)

PROFESSIONAL AFFILIATIONS

The Society for Neuroscience
International Society of Motor Control
Gerontological Society of America
North American Society for the Psychology of Sport and Physical Activity
American Physiological Society
Dan Kiel, Ph.D.
28 Stonybrook Lane
Shrewsbury, MA 01545
(508) 842-6184

EDUCATION

1993  Ph.D.  Columbia University, New York, NY, Pharmacology
2000  MBA  University of San Diego, San Diego, CA, Finance
1987  M.S.  Northeastern University, Boston, MA, Pharmacology
1984  B.S.  Massachusetts College of Pharmacy, Boston, MA, Pharmacy

EMPLOYMENT/WORK EXPERIENCE/POSITIONS HELD

3/11 – present:  Massachusetts College of Pharmacy and Health Sciences
                 Boston, MA
                 Associate Professor of Pharmacology

4/02 – 3/11:  Massachusetts College of Pharmacy and Health Sciences
              Boston, MA
              Assistant Professor of Pharmacology

10/09 – present  Kaplan University
                Adjunct Professor of Pharmacology

10/04 – present  University of Massachusetts, Lowell
                 Lowell, MA
                 Adjunct Professor of Pharmacology

5/00 – 4/02:  Pfizer Global Research and Development
              La Jolla, CA
              Senior Scientist
              Department of Research Pharmacology

5/97 – 5/00:  Agouron Pharmaceuticals, Inc.
              La Jolla, CA
              Senior Scientist
              Department of HTD Pharmacology
2/95 – 5/97: Alanex Corporation  
La Jolla, CA  
Research Scientist  
Department of Pharmacology

5/93 – 2/95: University of California, San Diego  
La Jolla, CA  
Post-Doctoral Research Associate  
Department of Pharmacology

TEACHING EXPERIENCE

Massachusetts College of Pharmacy and Health Sciences

**PSB 451: Pharmacology I:** Introduces the student to the science of pharmacology with emphasis on the basic principles of pharmacology, genetic factors modifying drug responses, dose-response relationships, and in-depth consideration of the effects of drugs on the autonomic nervous system, the cardiovascular system and eicosanoids. 4 credits, fall semester annually. 250+ students per semester.

- Coordinated course and taught 75% of course from 2006 to present

**PSB 454: Pharmacology II:** A continuation of PHL 451, emphasizing drugs affecting the central nervous system, the endocrine systems and anti-cancer drugs. 4 credits, spring semester annually. 250+ students per semester.

- Coordinated course and taught 75% of course from 2007 to present

**PSB 301: Pharmacology for Allied Health Professionals:** An introductory course designed to familiarize students with commonly used drugs, their mechanisms of action, indications and major adverse effects. The course follows a disease-based format and includes pharmacotherapy of cardiovascular, CNS, endocrine, bacterial and malignant conditions. Principles of drug administration and pharmacokinetics are also presented. 3 credits, spring semester annually. 30-70 students per semester.


**DHY 342: Pharmacology (for dental hygiene students):** An introductory pharmacology course focusing on commonly used drugs, mechanisms of action, indications and major adverse effects. Pharmacotherapy of cardiovascular, CNS, endocrine, bacterial and
malignant conditions, along with the principles of drug administration, and pharmacokinetics are discussed. 3 credits, fall semester annually. 30-60 students per semester.

_Taught entire course in 2003, 2004 and 2005_

**PAS 406: Clinical Pharmacology II (for physician assistant students):** As a continuation of PAS 518, students analyze drugs used to treat hematologic, inflammatory, endocrine, and reproductive disorders, as well as infections and cancer. Application to clinical scenarios is emphasized. 3 credits, spring semester annually. ~30 students per semester.

_Coordinated and taught 50% of course in 2008_

**PSB 841: Advanced Pharmacology I (graduate level):** A receptor pharmacology course, focusing on G protein-coupled receptors including structures, second messengers and desensitization. By reading the original literature, students learn the evolution of the two-state receptor model as well as methods of measuring ligand affinity and efficacy at GPCRs. 3 credits, fall semester annually. Fewer than five students per semester.

_Taught 50% of course_

**PSB 842: Advanced Pharmacology II (graduate level):** A continuation of PSB 841, with a focus on receptor tyrosine kinases and nuclear hormone receptors. Principles, methods and techniques employed in the evaluation of drug effectiveness at these receptors are presented. 3 credits, spring semester annually. Fewer than five students per semester.

_Taught 50% of course_

**Kaplan University**

**MR160: Pharmacology and Laboratory Medicine (online course):** This course focuses on the broad field of pharmacology. Students study drug classes and the most commonly prescribed drugs, including their indication, mechanism of action and doses. Methods and routes of administration are explored. The course also covers diagnostic tests and laboratory procedures for common diseases. The identification of normal laboratory values and how to select and interpret an appropriate reference source are also included.

_Taught 100% of course_
**HS140: Pharmacology (online course):** This course is a systematic study of basic pharmacology principles with emphasis on the skills and information needed to succeed in a working environment. Topics covered include drug classes, dosage calculations and measurement conversions, drug administration routes, and proper medication documentation procedures.

_Taught 100% of course_

University of Massachusetts Lowell

**38.356: Pharmacology (for exercise physiology students):** An introduction to the chemistry, biochemistry and physiological actions of various pharmaceuticals. Fundamental concepts will be stressed and will include a discussion of drug receptors, drug-receptor interactions, pharmacokinetics, enzyme induction, drug metabolism, drug safety and effectiveness and idiosyncratic reactions. Several major groups of drugs will be studied including: central nervous system stimulants, hypnotics, narcotic analgesics, anti-inflammatory drugs, cholinergics, adrenergics, adrenergic blocking drugs, antihypertensives, antihistamines, diuretics, adrenal steroids, anti-anemic drugs and antibiotics. Articles from the current literature will be discussed. 3 credits, fall semester annually. 30-50 students.

_Coordinated and taught 100% of course_

**34.501: Pharmacology (for physical therapy graduate students) (online course):** An introduction to the chemistry, biochemistry and physiological actions of various pharmaceuticals. Fundamental concepts will be stressed and will include a discussion of drug receptors, drug-receptor interactions, pharmacokinetics, enzyme induction, drug metabolism, drug safety and effectiveness and idiosyncratic reactions. Several major groups of drugs will be studied including: central nervous system stimulants, hypnotics, narcotic analgesics, anti-inflammatory drugs, cholinergics, adrenergics, adrenergic blocking drugs, antihypertensives, antihistamines, diuretics, adrenal steroids, anti-anemic drugs and antibiotics. 2 credits, summer session. 15 students.

_Planned, implemented and taught 100% of online course in summer 2008_
HONORS/AWARDS

MCPHS Department of Pharmaceutical Sciences Teacher of the Year Award 2009-2010
MCPHS Department of Pharmaceutical Sciences Teacher of the Year Award 2011-2012

GRANTS

PPAR-Gamma-induced Vasopressin Modulation
MCPHS Faculty Development Program
$4,972
7/1/03 – 6/30/04
Principal Investigator
Status: Funded

Increased Receptor or Symporter Expression as a Mechanism of Thiazolidinedione-Induced Edema
AACP-AFPE New Investigators Program
$10,000
2003 - 2004
Principal Investigator
Status: Not Funded

Care and Use of Laboratory Animals
Edna H. Tompkins Trust
$13,000
2010 - 2011
Project leader
Status: Funded

PUBLICATIONS (Excluding Abstracts)

Peer-reviewed articles:


**PRESENTATIONS (Excluding Posters)**

*Peer-reviewed papers:*

Exendin (9-39) is a partial agonist at the human GLP-1 receptor. 59th Annual Scientific Sessions of the American Diabetes Association, San Diego, June 20th 1999.

*Invited podium presentations/speeches:*


**PROFESSIONAL MEMBERSHIPS**

American Society for Pharmacology and Experimental Therapeutics

**PROFESSIONAL ACTIVITIES**

*Continuing Education:*

The Use and Misuse of Growth Hormones; presented at MCPHS Pharmaceutical Care Days, December 5th 2009, Boston.

**MCPHS COMMITTEE ASSIGNMENTS** (past five years)

*College:*

Institutional Animal Care and Use Committee (IACUC), 2004 – present (Chair 1/1/10–present)
Institutional Review Board (IRB), 2006 – present
Graduate Academic Standing Committee, 2006 – present
Graduate Admissions Committee, 2004 – present
Graduate Council, 2009 – present
School:

Curriculum Committee, 2006 – present
Assessment Committee, 2008 – present
Self Study Committee, 2008 – present

Department:

Pharmaceutical Sciences Faculty Search Committee, 2004 – 2009
COMPREHENSIVE PROFESSIONAL VITAE

Erika S. Lewis, PT, EdD, MS, CHT

Physical Therapy
College of Health Sciences
Associate Professor
Appt Date: August 29, 2004

Date: August 16, 2014

A. EDUCATION AND ACADEMIC QUALIFICATIONS

Education

2004 Doctor of Education
Leadership and Schooling
Dissertation: Emotional Intelligence, Cognitive Intelligence and Clinical Performance in Physical Therapy Students
University of Massachusetts Lowell

1992 Master of Science
Physical Therapy
University of Massachusetts Lowell

1987 Bachelor of Science
Pre-Physical Therapy
University of Massachusetts Amherst

Licensure

2013 Physical Therapist
License renewal through Allied Health Professions as a Physical Therapist.
License # 9393

Certifications

2013 Re-Certification Hand Therapist
Hand Therapy Certification Commission
Re-certification approval received April 2013 with 2,000 hours of hand therapy work/research and 80 contact hours of continuing education in 5 years.

2010 Certified Exercise Expert for the Aging Adult
American Physical Therapy Association

2008 Re-Certification Hand Therapist
Hand Therapy Certification Commission
Certifications, continued

2003  Re-Certification Hand Therapist  Hand Therapy Certification Commission
1998  Certified Hand Therapist  Hand Therapy Certification Commission

Academic Experience

2004 Fall – present  Associate Professor
Physical Therapy Department
University of Massachusetts Lowell, Lowell, MA

1999 Spring & Fall  Teaching Assistant
1997 & 1998 Fall  Physical Therapy Department
University of Massachusetts Lowell, Lowell, MA

1997 & 1998 Spring  Adjunct Faculty
Physical Therapy Department
University of Massachusetts Lowell, Lowell, MA

B. PROFESSIONAL ACTIVITIES

Current Professional Association Participation

1990-2013  American Physical Therapy Association
1995-2013  Hand Therapy Special Interest Group Baystate Chapter, Chair ’96-’97
2003-2013  Education Section of the American Physical Therapy Association
2004-2011  Massachusetts Central District Division of American Physical Therapy Association
2007-Present  American Society for Hand Therapists (ASHT)
2009-2013  Geriatric Section of the American Physical Therapy Association

Invited Professional Presentations

  Trigger Finger Treatment: An Outcome Study
  Refereed Platform Presentation
  Sturbridge, MA
  PI: Erika Lewis, PT, EdD, MS, CHT,
  Co-investigators: Anthony Howley, OTR/L, Marci D. Jones, MD
Invited Professional Presentations, continued


This was a 6-hour instructional course designed to improve the diagnosis and treatment of patients. It was presented to members of a local chapter of the American Physical Therapy Association, including clinicians and therapists who would be performing such diagnoses and treatments.


This presentation communicated the research findings of our emotional intelligence study. Attendees included clinicians, therapists, and educators who are all interested in improving the clinical performance of newly graduated physical therapy students.

Invited Lecture Presentations

November 15, 2011  Physical Therapist’s Management of Extensor Tendon Injuries. Guest lecture for “Musculoskeletal Physical Therapy II 34.610.803” course at the invitation of Dr. Joyce White, Associate Professor in Physical Therapy, Mahoney Hall, University of Massachusetts Lowell Lowell, MA

This presentation for 2nd year DPT students (31) communicated the latest research on the most efficient methods for treating lacerations and ruptures of extensor tendons from Zone 1-7 for the purpose of improving patient treatment outcome.

April 21, 2010  Physiological Measurements: Intrarater and Interrater Reliability Guest lecture for “Measurement in Health and Behavioral Research” class at the invitation of Dr. Jacqueline Dowling, Associate Professor in Nursing, Director of Baccalaureate Nursing Program University of Massachusetts Lowell Lowell, MA

This lecture shared with students in the PhD Nursing Program, our research concerning the reliability and problems with a clinical instrument that is widely used in hand therapy.
Invited Lecture Presentations, continued

Feb. 6, 2004  
*Hand Therapy for Rheumatoid Arthritis: Splinting and Adaptive Equipment*  
UMass Memorial Hospital  
Worcester, MA

This presentation for Attending MDs communicated the latest research on the most efficient methods for treating Rheumatoid Arthritis in order to improve patient treatment.

May 24-25, 2003  
*Rehabilitation of the Upper Extremity: Elbow Rehabilitation*  
UMass Memorial Hospital  
Worcester, MA

This presentation for Physical and Occupational Therapists communicated the latest research on improved methods for elbow rehabilitation in order to enhance patient treatment.

Sept. 17, 2001  
*Effective Management of Metacarpal and Phalangeal Fractures*  
Annual Dufault Lecture Series  
Worcester, MA

This lecture was aimed at Physical and Occupational Therapists in order to share the most efficient methods for hand and finger rehabilitation in order to improve hand therapy.

Oct. 6, 2000  
*Orthopedics for Primary Care Providers: Enhancing Your Ambulatory Skills: Upper Extremity Splints and Braces*  
Sturbridge, MA

This seminar for Primary Care Physicians conveyed classic and improved treatment and splints for physical therapy of the hand and arm.

Feb. 4, 2000  
*Joint Mobilization for the Glenohumeral Joint Hands-On Lab*  
Baystate Hand Therapy Special Interest Group  
Newton, MA

Physical and Occupational Therapists were trained in manual techniques for shoulder therapy.
Invited Presentations

April 22, 2014  
University of Massachusetts Lowell. Student Research Symposium.  
*Reliability and Validity of Figure-of-Eight Measurement Compared to Volumeters Part 1.*  
Poster Session  
Lowell, MA  
PI: **Erika Lewis**, PT, EdD, MS, CHT,  
Co-investigators: Jennifer Gray, PT/s, OTR/L, Joseph Lee, PT/s

January 8-11, 2013  
American Association for Hand Surgery (AAHS) Annual Meeting.  
Grand Hyatt Hotel, Kauai, Hawaii  
*Return of Range of Motion Following Volar Plating for a Distal Radius Fracture.*  
Refereed Poster Session  
Kauai, Hawaii  
PI: Marci Jones, MD  
Co-investigators: **Erika Lewis**, PT, EdD, MS, CHT, Ryan Strepza, Patricia Franklin MD, MBA

October 25-26, 2013  
American Society for Hand Therapists (ASHT) 36th Annual Meeting.  
Chicago, IL.  
*Trigger Finger Treatment: An Outcome Study. Comparing surgical intervention to all conservative treatments.*  
Refereed Poster Session  
Chicago, IL  
PI: **Erika Lewis**, PT, EdD, MS, CHT,  
Co-investigators: Anthony Howley, OTR/L, Marci D. Jones, MD  
**Winner: Best Scientific Poster 2013. Received Blue Ribbon and Certificate**

May 2, 2013  
University of Massachusetts Lowell. 4th Annual Faculty Development Conference. School of Health and Environment Research Day.  
*Trigger Finger Treatment: An Outcome Study.*  
Refereed Poster Session  
Lowell, MA  
PI: **Erika Lewis**, PT, EdD, MS, CHT,  
Co-investigators: Anthony Howley, OTR/L, Marci D. Jones, MD

April 27, 2012  
University of Massachusetts Lowell. 3rd Annual Faculty Development Conference. Research Day.  
*Finger Circumference Measurements: Inter-rater and Intra-rater Reliability*  
Invited Poster Session  
Lowell, MA  
PI: Erika Lewis, PT, EdD, CHT
Invited Presentations, Continued

October 6, 2011
University of Massachusetts Lowell. Faculty Research Symposium and Recognition Reception. Faculty Research, Scholarship and Creative Works.

Finger Circumference Measurements: Inter-rater and Intra-rater Reliability
Invited Poster Session
Lowell, MA
PI: Erika Lewis, PT, EdD, CHT

Sept. 22-25, 2011
American Society for Hand Therapists (ASHT) 34th Annual Meeting. Instruments of Change. Gaylord Opryland Hotel and National Convention Center, Nashville, TN.

Reliability of Finger Circumference Measurements
Refereed Poster Session
Nashville, TN
PI: Erika Lewis, PT, EdD, CHT
Co-PI: Anthony Howley, OTR/L, CHT

Awarded Blue Ribbon for Best Scientific Research Poster Finalist

This poster presented our most recent research findings on devices commonly used in the hand therapy clinic for assessing edema.

Sept. 22-25, 2011
American Society for Hand Therapists (ASHT) 34th Annual Meeting. Instruments of Change. Gaylord Opryland Hotel and National Convention Center, Nashville, TN.

Intrarater and Interrater Reliability of the Finger Goniometric Measurements.
Refereed Poster Session
Nashville, TN
PI: Erika Lewis, PT, EdD, CHT
Co-PI: Lynn Fors, OTR/L, CHT, William J. Tharion, MS

Awarded Blue Ribbon for Best Scientific Research Poster Finalist

This poster presented our research findings on the efficiency and failings in the use of the finger goniometer, which measures range of motion.

June 8-11, 2011

Reliability of Finger Circumference Measurements
Refereed Poster Session
National Harbor, MD
Invited Presentations, continued

Assessing the Ability of Emotional Intelligence to Predict Clinical Performance in Professional Physical Therapy Students. 
Refereed Poster Session 
National Harbor, MD

April 29, 2011 University of Massachusetts Lowell. 2nd Annual Faculty Development Conference 
Intrarater and Interrater Reliability of the Finger Goniometric Measurements. 
Refereed Poster Session 
Lowell, MA

June 18, 2010 American Physical Therapy Association (APTA) Annual Conference 
Intrarater and Interrater Reliability of the Finger Goniometric Measurements. 
Refereed Poster Session 
Boston, MA

This poster presented our research on the efficiency and failings in the use of the finger goniometer, which measures range of motion.

April 8, 2010 University of Massachusetts Lowell. 1st Annual Faculty Development Conference 
Trigger Finger Treatment: An Outcome Study 
Refereed Poster Session 
Lowell, MA

This poster presented our most recent research findings on the therapeutic results of various commonly used treatments for trigger finger.

July 8, 2009 UMass Medical School 
Trigger Finger Research Study 
Worcester, MA
Invited Presentations, Continued

This presentation for research faculty, medical students, and fellows shared our research findings on the therapeutic results of various commonly used treatments for trigger finger.

April 2008 University of Massachusetts Lowell. Faculty Research Day Inauguration Week.
*Emotional Intelligence, Cognitive Intelligence and Clinical Performance in Physical Therapy Students*
Poster Session
Lowell, MA

This poster communicated our research on the role emotional intelligence can play in predicting the clinical performance of physical therapy students.

April 30, 2009 UMass Memorial Health Care Hospital, Worcester, MA
Oct. 25, 2007 Dartmouth-Hitchcock Medical Center Hospital, Lebanon, NH
May 2007 UMass Memorial Health Care Hospital, Worcester, MA
*Trigger Finger Research Study*

Presented for Orthopedic Hand Surgeons, hand therapists, residents, and Director and Manager of Rehabilitation Services and Hand Therapy to encourage their involvement with the project in order to create a collaborative, multi-center research project.

1995 *Effects of Paraffin Bath on Upper Extremity Volume.*
Refereed Poster Presentation at the 12th International Congress of the World Confederation for Physical Therapy in Washington, DC.
The results from my Masters project was presented by a faculty advisor.
Non-Teaching Activities Professional Clinical Experience

2000 –2005  **UMass Memorial Medical Center**, Worcester, MA
Hand Therapist
Responsibilities:  Wound care, sensory testing, fabricating dynamic and static splints, scar management, and patient education on joint protection, in addition to the responsibilities of A/PROM, strengthening, modalities, and ADL’s. Diagnoses treated include tendon lacerations and repair, crush injuries, traumatic amputations, nerve lacerations and compressions, arthroplasties, tendonitis, burns, and osteoarthritis. Modalities frequently used are listed in next paragraph. Performed evaluations on Greenleaf software for disability ratings. Treated pediatric through geriatric populations. Performed in leadership capacity as a speaker for a variety of conferences.
September 2004 to January 2005 worked Per Diem one day a week while full-time faculty at the University of Massachusetts Lowell.

Hand Therapist
Responsibilities:  Provided patient care as hand therapist with similar functions as listed above. Modalities frequently used include: ultrasound, fluidotherapy, whirlpool, iontophoresis, TENS, electrical stimulation, and biofeedback. Management functions included verification of insurance benefits and authorizations, scheduling patient appointments, collecting co-pays, and maintaining inventory. Member of Safety Committee.

1992-1995  **Brigham and Women’s Hospital**, Boston, MA
Hand Therapist
Inpatient Orthopedic physical therapist
Pool Therapy 3-month rotation
Responsibilities:  Hand therapist with same diagnoses and evaluation skills as listed above. Conducted ergonomic evaluation and recommendation for laboratory employees.
C. RESEARCH

Grants and Contracts Funded

February 2011  Deshpande Foundation Campus Catalyst Competition  $500

*Fall Risk Self Assessment: How to help yourself and the ones you love*

The aim of this grant is to support a collaborative research project with Doctor of Physical Therapy students and Physical Therapy faculty to educate Merrimack Valley residents on ways to reduce their risk of falls and why it is so important. **The significance** of our project that millions of dollars in health care dollars is spent on fall related costs.

Lewis, E., Jarjoura, N. and M. Jensen-Battaglia.

**Role: Principle Investigator**

June 2010  NIH R03 Small Research Grant  $224,661

*Novel Material for Improved Outcomes with Custom Splints*

The aim of this grant is to support a collaborative research project with engineers at InfoSciTex, Waltham, MA. Data acquired from hand therapists under a previously funded grant indicates that the unique properties of this novel material would be useful in static and dynamic splints. The strength of the novel material is engineered to match that of traditional material yet is thinner and lighter with increased breathability. Specific aims of the study include clinical trials comparing the new material to traditional material using the wrist splint and the short opponens thumb splint on patients with wrist and thumb pathologies. **The significance** of our hypothesis is that healing time can be reduced while providing a more comfortable splint. Laboratory testing and clinical feedback from hand therapists on physical properties and handling qualities of the material are included in the methodology. This grant is currently under revision.


**Role: Principle Investigator**
Grants and Contracts Funded, continued

March 2009

**Exploration in Teaching and Learning Grant 2009**  
*Strategies for Success in the Freshman Year: Improving Academic Performance and Student Retention in the Exercise Physiology Program*

This grant supported an investigation into the retention of freshman students to a graduate program. About 90% of freshman Exercise Physiology students plan to attend physical therapy graduate school yet that number decreases significantly by junior year. Weekly freshman seminars and a junior seminar series were incorporated in the program to facilitate academic success and retention of Exercise Physiology students. **The significance** of this project is that with early intervention we aim to improve the academic quality of the University’s Exercise Physiology Program and students.

**Role:** Co-Investigator

Aug. 2008

**American Hand Therapy Foundation (AHTF)**  
**2008 AHTF Burkhalter New Investigator Grant**  
*Trigger Finger Treatment: An Outcome Study*

*Intercampus collaborative* research involving UMass Lowell Physical Therapy Department doctor of physical therapy (DPT) students and clinicians from UMass Memorial Health Care Hospital and UMass Medical School (both Worcester, MA), including occupational therapists, certified hand therapists and orthopedic, plastic, and hand surgeons. The purpose of this study is to assess the benefits of various trigger finger treatments. Trigger finger affects 2.6% of the population and is a common and painful ailment in hand therapy. **The significance** of the study is that hand therapy could be a viable conservative treatment option for trigger finger, thus avoiding the need for surgery. This observational study will follow the path of patients with different treatment options. It will provide solid evidence to support physical therapy practice and orthopedic and plastic hand surgery. This research has also led to two research articles being published.

Lewis, E., Jones, M., and L. Fors.  
**Role:** Principal Investigator
Grants and Contracts Funded, continued

April 2008  
**SHE Seed Grant**  
**$5,000**  
*Trigger Finger Treatment: An Outcome Study*  
**Intercampus collaborative** research with UMass Lowell doctor of physical therapy students, and clinicians from UMass Memorial Health Care Hospital performing a similar study as explained above. This research study also includes analysis on the reliability of the finger goniometer and finger circumference gauge. The finger goniometer is a protractor-like device that measures range of motion of the finger joints of the hand. The finger circumference gauge is a unique instrument similar to a tape measure that is used to assess edema. **The significance** of the work on the reliability of the two instruments is that though they are used daily in hand therapy, there is a major lack of research performed on the reliability of these instruments.  
Lewis, E., Fors, L.  
**Role: Principal Investigator**

March 2008  
**SHE Creativity Fund**  
**$500**  
*Hands-On Health Fair*  
This is a Community Service initiative presented to community dwelling residents age 55 and older concerning the risk of falls and fall prevention as well as education on upper extremity injuries. Screening tests were performed, including balance and strength testing, and educational one-on-one conversations with hand therapists were held. Splint samples and written educational material were made available for participants to view and ask questions about. Further information about diagnoses is explained under the Community Service section of this document. This project was a collaboration between UMass Lowell Physical Therapy faculty, eleven Doctor of Physical Therapy students, and three Occupational Therapists from UMass Memorial Health Care Hospital. The program attracted a significant turnout with 40 participants attending the fair. There was very positive feedback from participants with a request for another health fair. **The significance** of this project is that by increasing health awareness and prevention in a target population, we hope to reduce injuries in the elderly.  
**Role: Principal Investigator**
Grants and Contracts Funded, continued

2006 - 2009  

**NIH SBIR**  

*Novel Material for Conformable Splints*

This grant supports a collaborative research project with engineers at InfoSciTex (Waltham, MA). I was awarded $28,800 as a Certified Hand Therapist Consultant. This small business innovation research (SBIR) Phase 1 grant funded a project to design a lighter weight splint material that is easy to adjust thus increasing efficiency in the clinic and patient compliance. Data collection included testing material in the clinic and feedback from hand therapists via written survey. Three phases of data collection on material testing in hand clinic have been completed. **The significance** of this study is that by utilizing a lighter weight splint material that is easy to adjust, it would increase time efficiency in the clinic and patient compliance.

Galea, A., Lewis, E, LeRoy, K. Player, J.

**Role: PI for Subcontract**
Grants and Contracts, not funded

January 2014  
NIH, SBIR, Phase 1  
$6,000  
*REACH: Rehabilitative Exercise and Assistive Cable-Driven Hand System*

The aim of this grant is to support a collaborative research project with engineers and researchers at Vivonics, Inc. with the intent to address musculoskeletal injuries sustained in combat. Musculoskeletal injuries constitute a significant healthcare problem for military members returning from combat. The Vivonics REACH system is a low-profile robotically-based repetitive motion exerciser. **The significance** of our project is that almost half of combat vascular injuries are affecting the lower limbs and a quarter the upper limbs. The number of American battle wounded has passed 50,000.  
LeRoy, K., Klem, E., Louis, E., O’Toole, S., Hirschman, G., Lewis, E., Albuquerque, M.  
**Role:** Subcontractor/Consultant as Certified Hand Therapist

June 2013  
Founders Grant, American Society for Hand Therapists  
$5,000  
**Pilot Study: A Randomized Controlled Trial Comparing the Outcome of Distal Radius Fractures and Traditional Hand Therapy vs. Home Exercise Program using Smart Phone.**

The aim of this grant is to support a collaborative research project with Exercise Physiology students and Physical Therapy faculty to educate Merrimack Valley residents on ways to reduce their risk of falls and why it is so important. **The significance** of our project that millions of dollars in health care dollars is spent on fall related costs.  
**Role:** Co-Investigator

May 2012  
SHE Seed Grant Proposal  
$14,925  
*Comparison of Figure-of-Eight Hand Measurements to Standard Volumetric Measurements and the Reliability within a Clinical Setting With Hand Injured Patients.*

The aim of this grant is to support a collaborative research project with Hand Surgeons and Hand Therapists at UMass Memorial, Worcester, researchers at UMass Lowell, 3 Doctor of Physical Therapy Students, 6 Exercise Physiology undergraduate students and physical and occupational therapists from UMass Lowell faculty and local PT clinics. Edema is the retention of tissue fluid in the intracellular spaces; which is common in inflammatory conditions, traumatic injury and post-surgical conditions. Edema of the wrist and hand can result in detrimental physiological changes which decrease the range of motion of joint and limit the overall functional capacity and dexterity of the hand. The volumeter is an instrument used to calculate the amount of water displaced when the hand is submerged in water. This has been the fold standard. This instrument through reliable is not used in the clinical
setting because it is cumbersome to use and is very time consuming. The circumferential method using a tape measure to measure the circumference around the wrists and around the MCP joints is inexpensive and very quick to apply. However, this method would not include the edema that commonly collects in the dorsum of the hand. An alternative method to measure peripheral edema is the figure-of-eight method. The figure-of-eight method is time and cost effective and captures the dorsum of the hand in measurements. The purpose of this study is to determine if the figure-of-eight tape measure method of assessing the amount of edema in a swollen hand is valid and reliable. The significance of this study is that no reliability or validity studies have been conducted on the figure-of-eight method using injured hands. This grant is currently under review.


**Role: Principle Investigator**

**April 2011**

**American Society for Surgery of the Hand (ASSH)**  
$20,000

_A Randomized Controlled Study of Low Level Laser Treatment on Lateral Epicondylitis_

The aim of this grant is to support a collaborative research project with Hand Surgeons and Hand Therapists at UMass Memorial, Worcester, MA. Despite its prevalence in the clinic, there is no one treatment model whose efficacy has been consistently proven in the literature. Low Level Laser as a treatment for lateral epicondylitis has had variable results. Specific aims of the study include randomly controlled clinical trials comparing the Low Level Laser Treatment to a placebo treatment on patients with lateral epicondylitis pathology. **The significance** of our hypothesis is that treatment outcomes can be improved. This grant is currently under review.


**Role: Principle Investigator**

**Consultant/Creative Activities**

**1994-1996**

Massachusetts General Hospital Study
Principal Investigator: Dr. Bryan Buchholz and Dr. Laura Punnet, Work Environment Department
Performed musculoskeletal physical screenings on Construction Workers from the Boston Big Dig as part of a longitudinal study by Massachusetts General Hospital under the supervision of Dr. Joyce White, PT, Sc.D.
Peer-Reviewed Publications

**Lewis E, Jones M, Howley, A.** (2014). Figure-of-Eight Measurements Show High Reliability in a Clinical Setting in Assessing Injured Hand Edema. *Journal of Hand Therapy. (Under Revision)*

This study compared the “gold-standard” volumeters to the new figure-of-8 tape measure method for measuring hand swelling. Although volumeters are the gold standard for reliability they are expensive, time consuming, and in reality, not used by clinicians. The figure-of-8 method is quick and easy to learn, less expensive and tape measures are readily used in the clinic. This study examines the reliability and validity of the figure-of-8 methods on normal hands (Part A) and on hand injured hands in the clinical setting (Part B). The results will be generalizable to physical and occupational therapists and doctors and nurses working with hand injured patients.


This manuscript presents our research on the efficiency and failings in the treatment of trigger finger diagnosis. This study is unique because it is the only study that examines all of the treatment options. Surgery was compared to all combinations of conservative therapy examining six treatment groups total.


This longitudinal project followed physical therapy students over their 3-year program during the years 2005 – 2009 to assess if emotional intelligence ability changed over time. It also examined if the emotional intelligence test score could be used as a predictor for success in the physical therapy program or a passing score on the National Physical Therapy Exam. The study design was complex with multiple data collections (24 data collections) from two physical therapy classes at each of the four colleges and universities over the entire duration of the three-year program. Data was also collected directly from the physical therapy department of each institution. Data collection was completed March 2010. My study expands the body of literature on physical therapy education and emotional intelligence. In addition, I developed working relationships with colleagues at these Boston universities and colleges that are significant as they will facilitate further collaborations for both the department and the university. The data shows that while emotional intelligence may be a factor in passing the National Physical Therapy Exam or in clinical proficiency it is not predictive of either. Results show that an accurate tool to predict proficiency is still needed.
Peer-Reviewed Publications, continued


The results of the study assessing the efficiency of the level of emotional intelligence as a predictor for clinical performance are detailed in this article. While the results showed that emotional intelligence was not a predictor for clinical proficiency under the scope of this project, they prompted further investigation in this area in the form of a longitudinal study.


This manuscript details our research on the efficiency, failings, and reliability of the use of the finger goniometer, which measures range of motion. This is a frequently used instrument. The results will improve the use of this tool in the clinical setting.


This manuscript presents my research on the clinical use of finger circumference measurements, which is used to assess edema. Edema, common with each injury, causes permanent joint stiffness unless treated. These results show the variance of measurements between testers and provides suggestions for improving clinical results.

**Citation in Peer Reviewed Publications**


This manuscript is the 8th most cited article from Hand Therapy Journal as of 5/8/14.


Citation in Peer Reviewed Publications, continued


Citation in Peer Reviewed Publications, continued


Citation in Non-Peer Reviewed Publications


Cited in: JM Fruh. The correlation of emotional intelligence, academic achievement and clinical performance in undergraduate athletic training students. *Dissertation at University of Virginia.* 2005
Refereed Published Abstracts


This abstract summarized our research on the efficiency and failings in the treatment of trigger finger diagnosis. This study is unique because it is the only study that examines all of the treatment options.


This abstract summarized our research on the efficiency and failings in the use of the finger goniometer, which measures range of motion.
### D. INSTRUCTION RELATED ACTIVITY
(All at University of Massachusetts Lowell)

#### Associate Professor

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Level</th>
<th>Enrollment</th>
<th>Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>34.608.101</td>
<td>Musculoskeletal PT 1 Lec</td>
<td>Graduate</td>
<td>37</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.623.801</td>
<td>Musculoskeletal PT 1 Lab**</td>
<td>Graduate</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.623.802</td>
<td>Musculoskeletal PT 1 Lab</td>
<td>Graduate</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.629.709</td>
<td>Directed Research</td>
<td>Graduate</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>** Supervised Adjunct Faculty Lab Instructor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2013</td>
<td>38.315.101</td>
<td>Kinesiology Lecture*</td>
<td>Undergraduate</td>
<td>47</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.315.102</td>
<td>Kinesiology Lecture</td>
<td>Undergraduate</td>
<td>48</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.623.802</td>
<td>Musculoskeletal PT 2 Lab</td>
<td>Graduate</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.629.709</td>
<td>Directed Research</td>
<td>Graduate</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.421</td>
<td>Directed Study- Health</td>
<td>Undergraduate</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>** Supervised 5 Lab Instructors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summer 2013</td>
<td>38.421.011</td>
<td>Directed Study-Health Promo</td>
<td>Undergraduate</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>34.626</td>
<td>Geriatric Physical Therapy</td>
<td>Graduate</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.640</td>
<td>Clinical Reasoning PT II</td>
<td>Graduate</td>
<td>29</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.623.803</td>
<td>Musculoskeletal PT 1 Lab</td>
<td>Graduate</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.629.709</td>
<td>Directed Research</td>
<td>Graduate</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.421</td>
<td>Directed Study-Health</td>
<td>Undergraduate</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>38.315.101</td>
<td>Kinesiology Lecture</td>
<td>Undergraduate</td>
<td>41</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.315.102</td>
<td>Kinesiology Lecture</td>
<td>Undergraduate</td>
<td>32</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.623.802</td>
<td>Musculoskeletal PT 2 Lab</td>
<td>Graduate</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.629.709</td>
<td>Directed Research</td>
<td>Graduate</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>IB 550.789</td>
<td>BMBT Lab Experience</td>
<td>Graduate PhD</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Summer 2012</td>
<td>38.421.011</td>
<td>Directed Study-Health Promo</td>
<td>Undergraduate</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>34.626</td>
<td>Geriatric Physical Therapy</td>
<td>Graduate</td>
<td>31</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.640</td>
<td>Clinical Reasoning PT II</td>
<td>Graduate</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.421</td>
<td>Directed Study-Health</td>
<td>Undergraduate</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.610.803</td>
<td>Musculoskeletal PT 1 Lab</td>
<td>Graduate</td>
<td>14</td>
<td>3</td>
</tr>
</tbody>
</table>
### D. INSTRUCTION RELATED ACTIVITY, continued

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Description</th>
<th>Level</th>
<th>Enrollment</th>
<th>Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2011</td>
<td>38.315.101</td>
<td>Kinesiology Lecture</td>
<td>Undergraduate</td>
<td>40</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.315.102</td>
<td>Kinesiology Lecture</td>
<td>Undergraduate</td>
<td>38</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.317</td>
<td>Kinesiology Laboratory*</td>
<td>Undergraduate</td>
<td>74</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>38.421</td>
<td>Directed Study-Health</td>
<td>Undergraduate</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*supervised TAs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Assistant Professor**

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Description</th>
<th>Level</th>
<th>Enrollment</th>
<th>Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2011</td>
<td>34.626</td>
<td>Geriatric Physical Therapy</td>
<td>Graduate</td>
<td>31</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.640</td>
<td>Clinical Reasoning PT II</td>
<td>Graduate</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.629</td>
<td>Directed Research</td>
<td>Graduate</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.421</td>
<td>Directed Study-Health</td>
<td>Undergraduate</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>38.315</td>
<td>Kinesiology Lecture</td>
<td>Undergraduate</td>
<td>56</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.317</td>
<td>Kinesiology Laboratory*</td>
<td>Undergraduate</td>
<td>56</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>34.629</td>
<td>Directed Research</td>
<td>Graduate</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.421</td>
<td>Directed Study-Health</td>
<td>Undergraduate</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Spring 2010</td>
<td>34.626</td>
<td>Geriatric Physical Therapy</td>
<td>Graduate</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.640</td>
<td>Clinical Reasoning PT II</td>
<td>Graduate</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.629</td>
<td>Directed Research</td>
<td>Graduate</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.421</td>
<td>Directed Study-Health</td>
<td>Undergraduate</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Fall 2009</td>
<td>38.315</td>
<td>Kinesiology Lecture</td>
<td>Undergraduate</td>
<td>56</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.317</td>
<td>Kinesiology Laboratory*</td>
<td>Undergraduate</td>
<td>56</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>34.629</td>
<td>Directed Research</td>
<td>Graduate</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*Supervised teaching assistant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spring 2009</td>
<td>34.629</td>
<td>Pre-Tenure Sabbatical</td>
<td>Graduate</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.421</td>
<td>Dir. Study Health Promotion</td>
<td>Undergraduate</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Fall 2008</td>
<td>38.315</td>
<td>Kinesiology Lecture</td>
<td>Undergraduate</td>
<td>39</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.317</td>
<td>Kinesiology Laboratory*</td>
<td>Undergraduate</td>
<td>39</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>34.629</td>
<td>Directed Research</td>
<td>Graduate</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Spring 2008</td>
<td>34.616</td>
<td>Research Methods</td>
<td>Graduate</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.626</td>
<td>Geriatric Physical Therapy</td>
<td>Graduate</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>34.629</td>
<td>Directed Research</td>
<td>Graduate</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Fall 2007</td>
<td>38.315</td>
<td>Kinesiology Lecture</td>
<td>Undergraduate</td>
<td>39</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>38.317</td>
<td>Kinesiology Laboratory*</td>
<td>Undergraduate</td>
<td>39</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>34.629</td>
<td>Directed Research</td>
<td>Graduate</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>
D. INSTRUCTION RELATED ACTIVITY, continued

<table>
<thead>
<tr>
<th>Term</th>
<th>Code</th>
<th>Course Name</th>
<th>Level</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer 2007</td>
<td>34.650</td>
<td>Clinic Site Visits</td>
<td>Graduate</td>
<td></td>
</tr>
<tr>
<td>Spring 2007</td>
<td>34.616</td>
<td>Research Methods</td>
<td>Graduate</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>34.629</td>
<td>Directed Research, Co-advisor</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>Fall 2006</td>
<td>38.315</td>
<td>Kinesiology Lecture</td>
<td>Undergrad</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>38.317</td>
<td>Kinesiology Laboratory*</td>
<td>Undergrad</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>34.629</td>
<td>Directed Research, Co-advisor</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>Spring 2006</td>
<td>Maternity Leave</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2005</td>
<td>38.315</td>
<td>Kinesiology Lecture</td>
<td>Undergrad</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>38.317</td>
<td>Kinesiology Laboratory*</td>
<td>Undergrad</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>34.629</td>
<td>Directed Research</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>Summer 2005</td>
<td>34.650</td>
<td>Clinic Site Visits</td>
<td>Graduate</td>
<td></td>
</tr>
<tr>
<td>Spring 2005</td>
<td>34.616</td>
<td>Research Methods</td>
<td>Graduate</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>34.626</td>
<td>Geriatric Physical Therapy</td>
<td>Graduate</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>34.629</td>
<td>Directed Research</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>Fall 2004</td>
<td>38.315</td>
<td>Kinesiology Lecture</td>
<td>Undergrad</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>38.317</td>
<td>Kinesiology Laboratory*</td>
<td>Undergrad</td>
<td>27</td>
</tr>
</tbody>
</table>

*Supervised teaching assistant

Doctor of Physical Therapy Student Projects

Jan. 2012 – May 2014 Comparing Figure-of-Eight Measurement to Gold Standard Volumeters.


D. INSTRUCTION RELATED ACTIVITY, continued

Student Advising

Fall 2013 – Present Advisor for 28 undergraduate students, Seniors, Juniors, Sophomores

Fall 2009 – May 2013 Advisor for 23-28 undergraduate students, mostly in Class of 2013

Fall 2005 – May 2009 Advisor for 23-28 undergraduate students in the Class of 2009

<table>
<thead>
<tr>
<th>Adjunct Faculty</th>
<th>Enrollment</th>
<th>Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998 Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34.608</td>
<td>Graduate</td>
<td>50</td>
</tr>
<tr>
<td>34.610</td>
<td>Graduate</td>
<td>50</td>
</tr>
<tr>
<td>Musculoskeletal PT I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Musculoskeletal PT Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997 Spring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34.616</td>
<td>Graduate</td>
<td>50</td>
</tr>
<tr>
<td>Research Methods</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teaching Assistant</th>
<th>Enrollment</th>
<th>Contact Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999 Fall</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>34.623</td>
<td>Graduate</td>
<td></td>
</tr>
<tr>
<td>MS II Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1999 Spring</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>34.610</td>
<td>Graduate</td>
<td></td>
</tr>
<tr>
<td>MS I Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998 Fall</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>34.623</td>
<td>Graduate</td>
<td></td>
</tr>
<tr>
<td>MS II Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998 Spring</td>
<td>See Adjunct Faculty Section above</td>
<td></td>
</tr>
<tr>
<td>1997 Spring</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>34.610</td>
<td>Graduate</td>
<td></td>
</tr>
<tr>
<td>MS I Lab</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
D. INSTRUCTION RELATED ACTIVITY, continued

Guest Lecturer

2011  Doctor of Physical Therapy Program  34.610.803
      Physical Therapist’s Management of Extensor Tendon Injury
      Presented in Musculoskeletal Physical Therapy II
      Invited by Dr. Joyce White, Associate Professor

2010  PhD Nursing Program  33.706.201
      Measurement in Health and Behavioral Research
      Presented Physiological Measurement
      Invited by Dr. Jacqueline Dowling, Associate Professor

2009  Exercise Physiology Program  38.101
      Exercise Physiology Freshman Seminar
      Presented Research Agenda
      Invited by Dr. Cynthia Ferrara, Associate Professor
Professional Development

June 2014  Work Smart Alumnae: How to Get Paid What You are Worth: Salary Negotiation Workshop for UMass Lowell Alumnae. Speaker: Megan Cooney, Financial Advisor for Morgan Stanley. Location was University of Massachusetts Lowell, Lowell, MA


November 7, 2013  University of Massachusetts Lowell. Teaching and Learning Symposium and Recognition Reception. The Committee on Transformational Education. University of Massachusetts Lowell, Lowell, MA

May 21, 2013  School of Health and Environment Educational Retreat, Inn and Conference Center, University of Massachusetts Lowell, Lowell, MA

May 18, 2013  Twenty-Second Annual Commencement of University of Massachusetts Lowell, Tsongas Center, University of Massachusetts Lowell, Lowell, MA

May 2, 2013  (Fourth Annual Faculty Development Conference.) School of Health and Environment Research Day, Inn and Conference Center, University of Massachusetts Lowell, Lowell, MA

Feb 20, 2013  The Ups and Downs, Ins and Outs of NIH Grant Applications. School of Health and Environment Faculty Development Workshop, Weed Hall, University of Massachusetts Lowell, Lowell, MA. Susan Woskie, PhD and Susan Sama, ScD

April 27, 2012  Third Annual Faculty Development Conference. School of Health and Environment Research Day, Inn and Conference Center, University of Massachusetts Lowell, Lowell, MA

October 6, 2011  University of Massachusetts Lowell. Faculty Research Symposium and Recognition Reception. Faculty Research, Scholarship and Creative Works. University of Massachusetts Lowell, Lowell, MA
Sept 22-25, 2011  American Society for Hand Therapists (ASHT) 34th Annual Meeting  
Instruments of Change. Gaylord Opryland Hotel and National Convention Center, Nashville, TN

**Professional Development, continued**


April 2011  Second Annual Faculty Development Conference. School of Health and Environment Research Day, Inn and Conference Center, University of Massachusetts Lowell, Lowell, MA

April 2011  Conversation Dinner. The Scale-Up Project: Student-Centered Active Learning Environments. University of Massachusetts Lowell, Lowell, MA

March 2011  Enterprise Bank Non-Profit Collaborative Grant Writing and Networking Seminar. Tewksbury Inn, Tewksbury, MA

March 2011  NIH Grant Writing Seminar. Lowell, MA

April 2010  First Annual Faculty Development Conference. Linking Assessment, Technological Innovations in Pedagogy, and Scholarship of Teaching & Learning at University of Massachusetts Lowell, Lowell, MA

September 2010  American Society for Surgery of the Hands. Boston, MA


June 2010  Certified Exercise Expert for Aging Adult (CEEAA) Course III. Boston, MA

April 2010  Certified Exercise Expert for Aging Adult (CEEAA) Course II. Boston, MA

March 2010  Balancing Our Work and Our Lives. Voices of Working Women at University of Massachusetts Lowell, Lowell, MA

Nov. 2009  Certified Exercise Expert for Aging Adult (CEEAA). Boston, MA


June 2009  Blackboard Vista Web-Enhanced Course.

May 2009  Promotion and Tenure Workshop.

May 2008  Doctors Demystify The Wrist on Posters for OTs and PTs
May 2008    Doctors Demystify The Elbow on Posters for OTs and PTs.
May 2008    Doctors Demystify The Thumb on Posters for OTs and PTs.

Professional Development, continued

April 2008    Doctors Demystify The Wrist on Posters for OTs and PTs,
April 2008    Rehabilitation Management of the Wrist and Hand. Lexington, MA
April 2008    Doctors Demystify The Elbow for OTs and PTs, April 2008. Boston, MA
April 2008    Modalities for the Upper Extremity. Boston, MA
April 2008    Doctors Demystify Shoulder and Arm Anatomy for OTs and PTs.
March 2008    Health Behaviors and Misbehaviors of Older Adults with and without Heart Disease. Lowell, MA
March 2008    Doctors Demystify The Brachial Plexus for OTs and PTs.
March 2008    Doctors Demystify Forearm and Hand Anatomy for OTs and PTs.
Feb 2008      Doctors Demystify The Thumb on Posters for OTs and PTs.
Feb 2008      Doctors Demystify The Wrist on Posters for OTs and PTs,
Nov. 2007     Grant Writing 101. Lowell, MA
June 2007     Blackboard Vista Web-Enhanced Course. Lowell, MA
May 2007      Emotional Intelligence: A Distinguishing Quality of Outstanding Leadership. Lowell, MA
Feb. 2007     Combined Sections Meeting of the American Physical Therapy Association (CSM 2007). Boston, MA
June 2005     Promotion and Tenure Workshop. Lowell, MA
Jan. 2005     Grant Writing Seminar. Lowell, MA
Oct. 2004 Orthopaedics for the Aging Adult. Manchester, NH

April 2004 Rehabilitation of the Patient with Peripheral Vestibular Dysfunction. Worcester, MA

E. SERVICE ACTIVITIES

Committee Activities

Physical Therapy Department

Dec 2013 – May 1, 2014 Chair, Faculty Search Committee, Exercise Physiology Program
April 2013 – Present Chair, Curriculum Committee, Exercise Physiology Program
Jan 2014 – Present Exercise Physiology Professional Review Committee
Sept. 2011– Present DPT Department Personnel Committee
April - May 2012 Stecchi Scholarship Committee
June 2009 – Present Alumnae Advisory Board, Doctor of Physical Therapy Program
June 2008 – Present Doctor of Physical Therapy Curriculum Committee
Sept. 2007 – May 2008 Faculty Search Committee
May 2007 Stecchi Scholarship Committee
Oct. 2006 – Present Exercise Physiology Curriculum Committee
Nov. 2004 – Present DPT Admissions Committee

College of Health Sciences

2014 – Present Faculty Senate Library Services Committee
2004-2007 Student Services Committee
2004-2006 Common Space Committee

University of Massachusetts Lowell

January 2014 – present NCAA Self Study Committee, 4 year study
Sept 2013 – present Executive Committee
April 2013 Vice President, Faculty Senate, Invited to act as Faculty Senate Vice President
Sept 2013-May 2014
Jan. 2007 – 2008 Commencement Committee
Sept. 2005 – Present Faculty Senate, 8th year, Fourth term (2 year terms)

Other Services to the University of Massachusetts Lowell

2013-’14 Leadership role in supervising new faculty (1), adjunct faculty (3)
2014 Welcome Day, Open House, undergraduates
2011, 2012, 2013, 2014 DPT Accepted Student Welcome Day
2007, 2008, 2010-2013 University Commencement Ceremonies
2013, 2014 College of Health Sciences/PT Alumnae Hockey Night
2012 Faculty Marshal, University Undergraduate Commencement
2004 Open House

Professional Activities

2011 – Present Manuscript Reviewer for *Journal of Hand Surgery*
July – present. Review manuscript bimonthly

2010 – Present Manuscript Reviewer for *Journal of Physical Therapy Education*
April 2013, November 2013

2009 – Present Reviewer for F.A. Davis Publisher Book Proposal on “HandNotes”

Community Service

Sept. 2004-Present Community Contact as Certified Hand Therapist
Triage both university and local area telephone calls for hand injuries. Referral information includes surgical, therapeutic, and splinting related information. Facilitate by expediting entry into the medical system.

April 16, 2014 2014 University Alumni Awards…Celebrating Achievement Award Reception at UMass Lowell Inn and Conference Center

Oct. 25, 2013 Food Pantry, Cameron Senior Center, Westford
Sorting foods, eliminating expired foods, stocking shelves, assist to make greeting cards for the elder adults.

March-June 2012 3rd Annual Kids Fishing Derby for Hitching Post Greens, Westford, MA
Participated in fund raising and acted as project manager for the Kids Fishing Derby open to children 14 years old and under living in a 190 home neighborhood. Goal is to develop fishing skills in children, cultivate interest in active hobbies, encourage community involvement of local businesses, and provide a fun venue for community networking. Each of the 40+ participating children won a raffle prize of a fishing pole and tackle box. 30 trophies will be awarded for fish caught.

Roles: Co-Chair, Director of Fund Raising,
Community Service, continued

March 2012  Fall Risk Self Assessment: How to help yourself and the ones you love
Presentation
Stow, MA
Principal Investigator, responsible for IRB forms, liaison with facility, overseeing project and managing four 2nd year DPT students. Events included Power Point presentation, balance testing using Timed Up and Go Test (TUG) and Functional Reach Test, research survey, 15 raffle prize drawings and refreshments. Performed assistive device education and fitting. 40 participants. This project is significant for student hands on learning, community outreach to reduce falls and health care dollars and promote community relationships.
Roles: PI

April-June 2011  2nd Annual Kids Fishing Derby for Hitching Post Greens, Westford, MA
Participated in fund raising and acted as project manager for the Kids Fishing Derby open to children 14 years old and under living in a 190 home neighborhood. Goal is to develop fishing skills in children, cultivate interest in active hobbies, encourage community involvement of local businesses, and provide a fun venue for community networking. Each of the 46 participating children won a raffle prize of a fishing pole and tackle box. Twenty-five trophies were awarded for fish caught.
Roles: Co-Chair, Director of Fund Raising

April 2011  Fall Risk Self Assessment: How to help yourself and the ones you love
Presentation
Chelmsford Senior Center, Chelmsford, MA
Lowell Senior Center, Lowell, MA
Participated in fund raising and acted as project member to present to 170 participants education on reducing the risk of falls. Events included Power Point presentation, 14 raffle prize drawings and research survey.
Roles: Senior member of Fall Risk Fighters.

May-June 2010  1st Annual Kids Fishing Derby for Hitching Post Greens, Westford, MA
Participated in fund raising and acted as project manager for the Kids Fishing Derby open to children 14 years old and under living in a 190 home neighborhood. Goal is to develop fishing skills in children, cultivate interest in active hobbies, encourage community involvement of local businesses, and provide a fun venue for community networking. Each of the 39 participating children won a raffle prize of a fishing pole and tackle box. Nineteen trophies were awarded for fish caught.
Roles: Director of Fund Raising, Co-Chair, and Assistant Project Manager
Community Service, continued

May 2008 Hands-On Health Fair #2 Balance and Strength Testing
A Community Service initiative presented to community dwelling residents age 55 and older on the risk of falls, fall prevention, and education on upper extremity injuries. Screening tests, including balance and strength testing, educational one-on-one discussions with hand therapists, splint samples, and written educational material were provided. Diagnoses presented were adhesive capsulitis of the glenohumeral joint, lateral epicondylitis, osteoarthritis of the first carpometacarpal (basal thumb joint), carpal tunnel syndrome, and trigger finger. Educational materials were also distributed on Nutrition and Fall Prevention in the home as well as individualized patient education. Pedometers were given away as raffle prizes. This project was an intercampus collaboration between UMass Lowell Physical Therapy Department, eleven DPT students, and three Occupational Therapists from UMass Memorial Health Care Hospital. There was a significant turnout as 40 participants attended the fair. We received very positive feedback from attendees with request for another fair.

Lewis, E., Tabor, N., Howley, A.
Role: Principal Investigator/Project Manager

May 2007– 2008 Nashoba Valley Mothers of Multiples (NVMOM), Westford, MA
One year term as Programs, Co-Chair.

Sept 2007 St. Joseph The Good Provider Church Fall Fair, Berlin, MA
Participated in annual fund raising.

March 2007 Hands-On Health Fair #1 Hands
Leadership role in this initiative for community dwelling residents age 55 and older on the prevention and treatment of common upper extremity diagnoses. Provided participants with the opportunity for one-on-one discussions with hand therapists, issued written educational material, and demonstrated splint samples. Diagnoses presented were osteoarthritis in the 1st carpometacarpal (thumb), carpal tunnel syndrome, and trigger finger. This project was in collaboration with UMass Lowell Physical Therapy Department faculty, two Doctor of Physical Therapy students from UMass Lowell, and two Occupational Therapists from UMass Memorial Health Care Hospital. Approximately 35 participants attended the fair. Received very positive feedback from attendees with request to return and cover additional diagnoses.

Lewis, E., Fors, L., Sherman, J.
Role: Principal Investigator/Project Manager
Community Service, continued

May 2005-Sept. 2010 Multiple Myeloma Research Foundation (MMRF).
Sept. 2012 Participated in annual 5K Race and Fund Raising

2006-2012, 2014 Committee Member: Mothers of Multiples organization semi-annual
fund raising for Lowell Wish Foundation

June 2006 Special Olympics, Harvard Stadium, Cambridge, MA

Awards and Honors

October 26, 2013 Winner. Best Scientific Poster 2013 at American Society for Hand
Therapists (ASHT) 36th Annual Meeting receiving top scores on
abstract and nominated by peers. Recognized for organization of
poster, scientific quality and implications for hand therapy.
*Trigger Finger Treatment: An Outcome Study. Comparing surgical
intervention to all conservative treatments.*

The National Consortium for Academics and Sports
Northeastern University’s Sport in Society
The National Collegiate Athletic Association
National Federation of State High School Associations.
Nominated by the student-athlete with the highest GPA on the track
team in fall 2012 in recognition for my efforts in “inspiring the student
and supporting him in his effort both as a student and athlete”.

August 2011 Blue Ribbon. Finalist for Outstanding Scientific Research Poster
Award at the American Society of Hand Therapists 34th Annual
Meeting receiving top scores on abstract and nominated by peers.
Recognized for organization of poster, scientific quality and
implications for hand therapy. *Finger Circumference Measurements:
Inter-rater and Intra-rater Reliability*

August 2011 Blue Ribbon. Finalist for Outstanding Scientific Research Poster
Award at the American Society of Hand Therapists 34th Annual
Meeting receiving top scores on abstract and nominated by peers.
Recognized for organization of poster, scientific quality and
implications for hand therapy. *Intrarater and Interrater Reliability of
the Finger Goniometric Measurements.*

April 2010 Nominated by students for the Student Government Association’s
“Certificate of Excellence” in recognition of excellence and dedication
to teaching.
Awards and Honors, continued

May 2008  Award of Excellence in Community Service acknowledging my dedication to the Hands On Health Fair from the President of the Board of Trustees of Meeting House at Stow

Description of Journals

Hand therapy manuscripts are noteworthy because they are published in journals that are read by clinicians. The clinicians who read these articles have the potential to positively impact clinical practice based upon the novel findings presented in these journals. Therefore, once the research is disseminated through publication, it can quickly improve the treatment and recovery of patients.

The American Journal of Occupational Therapy
The stated goal of this peer-reviewed journal is to present information on the research, practice, and health care issues central to the field of occupational therapy. The American Journal of Occupational Therapy had an acceptance rate of 35% and an impact factor of 1.419 at the time of publication. The Journal currently has an IF of 2.021. Ranked as Number 19 in the Social Science Division of JCR. The impact factor of this journal reflects the fact that the target audience works in a specialized field.

Hand Therapy
I was the sole author on the hand therapy article entitled “Finger Circumference measurements: Inter-tester and intra-tester reliability”. This article was published in Hand Therapy (formerly known as The British Journal of Hand Therapy). This journal does not currently have an impact factor rating due to the change in publishers that occurred in 2009. This is an international journal aimed at hand therapists, surgeons, and specialists as well as occupational therapists.

The Internet Journal for Allied Health Sciences and Practice
I was the sole author of two articles submitted to this journal (one published in October 2010 and one accepted with revisions). The readers of this journal are health professionals and educators, such as physical therapists, occupational therapists, and nurses. This international journal has an acceptance rate of 47% for submitted manuscripts and readership from over 100 countries. Contributing authors are also from all over the world.

COMPREHENSIVE PROFESSIONAL VITAE

NAME: Mendes, Andrea C.
Department(s): Department of Physical Therapy
College(s) or Service Unit(s): College of Health Sciences
Rank or Title: Visiting Professor
Email: andrea_mendes@uml.edu
Office: 978-934-4483
Cell: 978-494-3478

EDUCATION AND ACADEMIC QUALIFICATIONS

Education

2004 University of Massachusetts Lowell
Doctorate in Physical Therapy

1995 University of Massachusetts Lowell
Master of Science in Physical Therapy

1993 University of Massachusetts Lowell
Bachelor of Science in Exercise Physiology
Magna cum laude
Minor in Psychology

1990 – 1994
University of Massachusetts Lowell
Varsity Cross Country and Track
Scholastic Athlete

Academic Experience

September 2013- present
University of Massachusetts Lowell
Visiting Professor

2011- 2013
University of Massachusetts Lowell
Adjunct Faculty
2002
University of Massachusetts Lowell
Adjunct Faculty

PROFESSIONAL ACTIVITIES

Professional Association/ Membership
American Physical Therapy Association (APTA) member
Massachusetts Chapter of the APTA member
Education Section of the APTA member

Professional License
Massachusetts Physical Therapy License #10507

Editorial/ Reviewer
Reviewer of pre-publication.
Exercise Program Design. Chapter 4: Cardiorespiratory System

Clinical Employment
1997 - Present (per diem)
Holy Family Hospital - Methuen, MA
An acute care hospital and medical center
Physical Therapist

RESEARCH
Academic & Professional Publications
Master of Science Degree Experimental Project
1995 Coppola A., Coppola J., Morreale C., Twomey S. “Effect of Therapeutic Massage on Delayed Onset Muscle Soreness”

INSTRUCTION RELATED ACTIVITY

Teaching
Graduate courses (*denotes significant course revisions)

34.609 Medical/Surgical Pathology (Fall 2013)
Instructor for graduate level pathophysiology. This course offers a systems approach to pathological conditions and the management of these conditions. The student is required to have a working knowledge of the body systems in order to comprehend, analyze and manipulate the information for successful completion of this course.
34.612 Cardiopulmonary Lecture (3 years)
Instructor and Co-Coordinator for the development of an advanced clinically-relevant course about the cardiopulmonary system. Teaching of physical therapy intervention for the cardiopulmonary patient is accomplished through the use of current case study discussions which stimulate the student’s use of higher levels of critical thinking. Responsible for developing, conducting and grading exams.

34.614 Cardiopulmonary PT Lab (2 years)
Instructor for concurrent cardiopulmonary lab; responsible for the development of lab material, resources for student’s independent learning, examination format; also responsible for conducting and grading lab practical exams

34.607 Physical Therapy Interventions I Lab (3 years)
Instructor for lab as developed for Physical Therapy Interventions I; responsible for teaching current techniques required for competence as a physical therapist across all settings; also responsible for conducting and grading lab practical exams

34.610 Musculoskeletal PT I Lab (1 year)
Instructor for lab as developed for Musculoskeletal PT I; responsible for teaching techniques related to range of motion, muscle testing, special tests and considerations for evaluation of the hip, knee, ankle and foot; also responsible for conducting and grading lab practical exams

Undergraduate courses (*denotes significant course revisions)

*38.202 Introduction to Exercise Physiology (1 year)
Instructor for undergraduate course introducing exercise physiology students to the field. This course is presented as a combination of traditional lecture material with the addition of special topics and guest speakers. Students utilize the American College of Sports Medicine Guidelines for Exercise Testing and Prescription in preparation for student presentations at the end of the semester. Students also read SPARK The Revolutionary New Science of Exercise and the Brain by John J. Ratey, MD to gain a perspective of the literature that describes the link between exercise and the body.

38.422 Exercise Prescription and Programming (1 year)
Instructor for undergraduate study of the physiology of exercise and the associated cardiopulmonary effects of exercise. The course provides an overview of common cardiopulmonary conditions and the management of these conditions. This course also provides the student with information about ECG
analysis and exercise testing per the American College of Sports Medicine (ACSM) protocols.

38.317 Kinesiology Lab (1 year)
Instructor for undergraduate study of the human body in motion; responsible for following curriculum concurrent with Kinesiology lecture; also responsible for conducting and grading lab practical exams.

38.101 Freshman Seminar (1 year)
Co-instructor for this course focused on providing freshmen in the Exercise Physiology Program with the tools and resources they need to succeed in the program. Students are asked to complete varied assignments throughout the semester with clearly defined instructions for optimizing their abilities to follow and complete specific assignments.

Other Activity and Accomplishments Related to the Instructional Function
1997-2004
Holy Family Hospital- Methuen, MA
Clinical Instructor
Instructor for clinical teaching for (15) physical therapy students.

1997-2004
Holy Family Hospital- Methuen, MA
Primary Staff Instructor

SERVICE ACTIVITIES

Community Activities Related to Professional Field
1997-2004
Holy Family Hospital- Methuen, MA
Community Speaker

Committee Activities

Department

- Attended weekly mentoring meetings (Fall)
- Proctored Clinical Anatomy exams
- Attended “Snack and Learn” sessions: September 24, November 14, December 5
- Attended in service on new balance tool under review
- Completed recommendation letters for 2 students
- Managed teaching assistant in Introduction to EP (124 students)
• Attended monthly mentoring meetings (Spring)
• Undergraduate student advisor (30 students)

College
• Volunteered at Meet and Greet October 21st
• Volunteered at Open House October 27th
• Attended all Strategic Planning meetings including retreat October 28th
• Volunteered for spring Open House April 12th

Professional Development
• Enrolled in/ completed Blackboard training
UNIVERSITY OF MASSACHUSETTS LOWELL
Personnel Form #6

COMPREHENSIVE PROFESSIONAL VITAE
(Full-Time Faculty/Librarians)

NAME: Murphy, Deirdra A. 
DATE: August 16, 2014

Department(s): Department of Physical Therapy
College: College of Health Sciences
Rank: Associate Professor (Chairperson-Elect) 
Field(s): Physical Therapy

Email: Deirdra_Murphy@uml.edu
Office: 978-934-4533
Cell: 978-828-7869

EDUCATION AND ACADEMIC QUALIFICATIONS

1. Education

2004 
Doctor of Physical Therapy
University of Massachusetts Lowell, Lowell, MA

2001 
Master of Health Administration
Suffolk University, Boston, MA

2001 
Leadership Education in Neurodevelopmental Disabilities (LEND) Program
Competitive application process for fellowship and stipend funding by Maternal and Child Health (Sept 2000-June 2001)
Eunice Kennedy Shriver Center, Waltham, MA

2000 
Master of Physical Therapy
University of Massachusetts Lowell, Lowell, MA
Advanced Practice Option, Emphasis in pediatrics

1981 
Bachelor of Science
Northeastern University, Boston, MA

2. Academic Experience

June 2013 
Chair Department of Physical Therapy
University of Massachusetts Lowell, Lowell, MA

Sept 2012-present 
DPT Program Director
Department of Physical Therapy
University of Massachusetts Lowell, Lowell, MA
Sept 2011–present  Associate Professor
Department of Physical Therapy
University of Massachusetts Lowell, Lowell, MA

2004-2011  Assistant Professor
Department of Physical Therapy
University of Massachusetts Lowell, Lowell, MA

2012, 2007 (spring)  Adjunct Faculty
Department of Physical Therapy
Northeastern University, Boston, MA

2001- 2004  Academic Coordinator of Clinical Education
Department of Physical Therapy
University of Massachusetts Lowell, Lowell, MA

1996-2001  Adjunct Faculty
Department of Physical Therapy
University of Massachusetts Lowell, Lowell, MA

3. Additional Roles

2012 –present Director, Assistive Technology Research Center
Working Group
University of Massachusetts Lowell

PROFESSIONAL ACTIVITIES

Professional Association Membership

2013  American Physical Therapy Association (APTA)
Research Section

2005-present  APTA Health Policy and Administration Section

2002-present  APTA Education Section

1998-present  APTA Massachusetts Chapter

1998-present  APTA Pediatrics Section

1998-present  APTA Member

Professional Licenses and Certifications

2004-2013  APTA Credentialed Clinical Trainer

2002-present  Credentialed Clinical Instructor

1982-present  Massachusetts Physical Therapy License # 4816

Editorial/Peer Reviewer

Manuscript Review, April, 2014, December 2013

2013  Reviewer, Duesterhaus Minor, MA, Duesterhaus Minor, S Patient Care Skills, 7th edition. Pearson/Prentice Hall, Norwalk, CT, 2013

2012  Reviewer, CE4Health product review, April, 2012. CES4Health.info, an online mechanism for peer reviewing, publishing and disseminating products of health-related community engaged scholarship.
2011 Reviewer, Journal of Autism and Developmental Disorders
Manuscript Review, September 2011
2011 Reviewer, Public Service Endowment and the Advancing Research, Scholarship and Creative Work (ARSCW) seed grants
2011 Reviewer, Pearson Health Science double-blind textbook review.
2011 Reviewer, New Solutions: A Journal of Environmental and Occupational Health Policy
2010 Reviewer, Journal of Autism and Developmental Disorders
2009 Reviewer, CES4Health.info, an online mechanism for peer reviewing, publishing and disseminating products of health-related community engaged scholarship. http://www.ces4health.info/

Professional Awards and Recognitions
2011 University Massachusetts Lowell NVivo 9 Fellowship Appointment
2009 Department Teaching Award, Department of Physical Therapy, Vote of Department Faculty
2009 2009 Carter Academic-Service Entrepreneur Award Award $1,000 Role: Faculty Advisor
2008 Pre-tenure Sabbatical, Spring Semester
2006 Department Teaching Award, Department of Physical Therapy, Vote of Department Faculty
2001 Pi Alpha Society, Suffolk University, Boston MA
1999 Outstanding Graduate Student Award
Physical Therapy Advanced Practice Option
University Massachusetts Lowell, Lowell, MA

RESEARCH & SCHOLARSHIP

Academic & Professional Publications

Peer Reviewed Publications

1 Included is a one to two sentence description of presentations and papers given since appointment in September, 2004.


2011  Murphy, D The Role of Faculty Reflection in Effective International Service-Learning Outcomes. Journal Civic Commitment. 17th Issue Fall 2011. Peer review online journal: http://www.mesacc.edu/other/engagement/journal/index17.shtml This paper describes my engagement in international service-learning experiences in the context of preparing faculty with personal and professional skills and tools necessary to meet the instructional needs of students as global citizens.


The purpose of this study was to measure the effect of hippotherapy on functional outcomes using the Goal Attainment Scale (GAS) for children with physical disabilities.

Peer Reviewed Presentations: (*denotes presenter (s))


2011  *Murphy, D., Hillier, A., Ferrara, CF., Baltisberger, N., Lopes, A., McCabe, R., Collins, S.M. "Effects of Exercise on Heart Rate Variability, Cortisol, and Stress on Young Adults With A Diagnosis Of Autism Spectrum Disorder". *World Physical Therapy 2011*. Amsterdam, Holland, June 20- June 23, 2011. The aim of this study was to assess the effect of an 8-week physical exercise and relaxation intervention on stress, as measured by heart rate variability, cortisol, and self-report anxiety measures, in adolescents and young adults on the autism spectrum. This presentation is a faculty-student collaborative research report poster.
2011 * Ferrara CM, Murphy DA. “Environmental Changes and Stair Use in a University Community”. 58th Annual Meeting and 2nd World Congress on Exercise is Medicine of the American College of Sports Medicine. Denver, CO, May 31 - June 4, 2011. The purpose of this study was to examine the effects of an environmental change on stair use in a campus building with access to the library and department offices.

2011 *Murphy, DA, Stanley, A. "Moving a Community to Better Health". CU (Community University) Expo 2011. Waterloo, Canada, May 10-14, 2011. The purpose of this proposal is to share the story of a diverse urban community’s effort to improve nutrition and physical activity for residents through community—university partnerships as a storytelling presentation.

2011 *Murphy, DA, Ferrara C., Bowen, L., Laakso, C., Picco, J. Assessment of The Built Environment and The Effects on The Perceptions of A Healthy Campus. American Physical Therapy Association Combined Sections Meeting. New Orleans, LA. February 9-12, 2011. The purpose of this research study was to assess the built environment and the perceptions of faculty, staff and students on a college campus following an interdisciplinary initiative designed to develop partnerships and coalitions to increase physical activity and improve nutrition at an urban university community combined with policy and built environment changes to minimize the consequences of obesity over a 3 year timeframe. This presentation is a faculty-student collaborative research project.

2010 *Hillier A, Murphy DA, Ferrara, C. Physical Exercise Reduces Stress and Anxiety Among Adolescents and Young Adults on the Autism Spectrum. Autism 2010 Geneva Centre for Autism International Symposium. Toronto, Canada. November 3-5th, 2010. The purpose of this research study is to present the ongoing data collection of the initial pilot study. The data collected from this 8-week physical exercise and relaxation intervention for adolescents and young adults on the autism spectrum reflects the 4th year of data collection from this study.

2010 Hannus, C., Noonan, R., Murphy, DA. Aquatic Physical Therapy For Children With Cerebral Palsy: A Case Study. 2010 American Physical Therapy Association Massachusetts Chapter Conference and Exposition. Danvers, MA. November 6th, 2010. The purpose of this case study is to determine the effectiveness of an 8-week aquatic exercise program on functional outcomes for a child with Cerebral Palsy.

2010 *Ferrara, CM, Murphy, DA. Creating Campus Partnerships to Increase Physical Activity: The Healthy Campus Campaign. 57th Annual Meeting and inaugural
World Congress on Exercise is Medicine of the American College of Sports Medicine Baltimore, Maryland, June 1 - 5, 2010.
The purpose of this study was assess the bikeability of the campus community, specifically number and location of bikes on campus, use of bike racks, and evaluation of transportation issues related to bike use and the bike usage as a way to promote physical activity on a campus community. In addition, the study assessed the perceptions of the community regarding the bikeability of the campus.

2010 *Murphy, DA. A Comparative Analysis of International and Interdisciplinary Service-Learning Experiences: Civic Engagement for a Global Society. 13th North American Higher Education Conference. Houston, TX. April 21-23rd, 2010. The purpose of this presentation was to highlight the challenges and opportunities presented to higher education in the design and implementation of international and interdisciplinary civic engagement through a comparative analysis of two different service-learning experiences in Nicaragua and Peru.

2009 *Murphy, DA. Duffy, J, Champagne, N. International and Interdisciplinary Service-Learning: Civic Engagement for a Global Society. New England Regional Campus Compact Spring 2009 Conference. Amherst, MA. March 30th-31st, 2009. This session will focus on two of the disciplines: community health and physical therapy and examine the reciprocal learning process for all stakeholders. Participants will explore strategies to develop positive outcomes in the context of complex dynamics present in multi-discipline international experiences.

2009 *Hillier A, Murphy DA. Reduction in Salivary Cortisol Following Physical Exercise and Relaxation among Adolescents and Young Adults on the Autism Spectrum. International Meeting for Autism Research. Chicago, IL. May 7-9th, 2009. The purpose of this research study is to present the pilot study data from a 8-week physical exercise and relaxation intervention for adolescents and young adults on the autism spectrum examining the effects of exercise and relaxation on stress and anxiety.

2009 *Murphy DA. Ferrara CM. Promoting Health on a Collage Campus: The Physical Therapist’s Role. Combined Sections Meeting of the American Physical Therapy Association. Las Vegas, NV. February 4-9, 2009. The presentation described the role of physical therapists in initiatives, which facilitate behavior change and promote health through the socio-ecological model for a campus population and minimize the consequences of obesity.
2008 Murphy DA, Ferrara CM. Perceptions of adolescents and community informants. A qualitative analysis of overweight in childhood. 136th APHA Annual Meeting and Exposition. San Diego, CA. October 25th-29th, 2008. The purpose of this study was to generate information about the perceptions of overweight from adolescents and community informants and possible interventions using qualitative analysis with funding support from a 2005 Joseph P. Healey Grant.

2008 *Murphy DA, Ferrara CM. A Model for Campus Partnerships for Better Health. 136th APHA Annual Meeting & Exposition. San Diego, CA. October 25-29, 2008. The purpose of this research study was to present data from year one of a longitudinal study which assesses the built environment and the perceptions of faculty, staff and students on a college campus following an interdisciplinary initiative designed to develop partnerships and coalitions to increase physical activity and improve nutrition at an urban university community combined with policy and built environment changes to minimize the consequences of obesity.

This presentation used a case study format to examine the effect for faculty from an international service-learning experience.

2007 *Murphy DA. A Qualitative Analysis of Adolescents’ Perceptions of Overweight in Childhood. Combined Sections Meeting of the American Physical Therapy Association. Boston, MA. February 14-18th, 2007. The purpose of this study was to generate information about the perceptions of overweight from adolescents and possible interventions using qualitative analysis with funding support from a 2005 Joseph P. Healey Grant.

The purpose of this study is to investigate the factors, which influence physical therapists’ ability to promote healthy lifestyles for individuals with developmental disabilities.

The purpose of this study was to measure the effects of therapeutic riding on functional outcomes using the Goal Attainment Scale for children with physical disabilities.
Manuscripts in Preparation/Review

Attitudes of a multiethnic group of immigrants towards online social networking and physical activity: Results from focus group discussions. L. Ackerson, C.M. Ferrara, and D. Murphy. In revision after review by Californian Journal of Health Promotion.

Peer Reviewed Abstracts

The purpose of this study was assess the stair usage on a campus community, specifically stair usage after environmental changes.

This abstract describes a student-faculty research study assessing the built environment and perceptions of faculty, staff, and students on a university campus.

The purpose of this study was assess the bikeability of the campus community, specifically number and location of bikes on campus, use of bike racks, and evaluation of transportation issues related to bike use and the bike usage as a way to promote physical activity on a campus community. In addition, the study assessed the perceptions of the community regarding the bikeability of the campus.

This abstract describes the role of physical therapists in initiatives, which facilitate behavior change and promote health through the socio-ecological model for a campus population and minimize the consequences of obesity.
The purpose of this study was to measure the effects of therapeutic riding on functional outcomes using the Goal Attainment Scale for children with physical disabilities.

Non-Peer Reviewed Publications


Grants and Contracts

2010 Pilot Project Program," A Community based social networking intervention to increase walking in dog owners".
Principal Investigator: Kristin Schneider
Co-Principal Investigators: Stephanie Lemon, Cynthia Ferrara, Deirdra Murphy
Agency: The Clinical and Translational Science Award (UMASS CTSA) Pilot Award Project.
Type: The UMASS CTSA award NIH grant fund # ULIRRO31982 AWARD: $175,000
Grant Period: 2/2011-1/2012
The research study aims to develop and initially test a community dog walking intervention that addresses individual, interpersonal and community factors associated with dog walking. The project will demonstrate initial efficacy for the dog walking intervention, which will provide pilot data for a study examining the dissemination of the intervention and the impact of the intervention on policies and changes in the walkability and dog-friendliness of the community. The study will be conducted in two cities, Worcester and Lowell, as a collaboration between investigators from UMass Medical School and UMass-Lowell.

US -Turkey Collaborative Effort in Advancing Assistive Technology based Education via State of the Art Research
Principal Investigator: Martin Margala, Ph.D
Co-Principal Investigators: Alkim Akyurtlu, Ph.D, Craig Armiento, Ph.D
Contributor: Deirdra Murphy, DPT, MS, MHA
Agency: National Science Foundation AWARD: $ 49,962
This workshop will introduce Assistive Technology (AT) to the Turkish higher education community and establish a framework for implementing AT programs in Turkey. It is expected that this program will directly impact the Turkish disabled community (including those affected by the internal conflicts with separatists in the Southeastern region of Turkey) as well as attitudes towards the disabled.

2010 Learn and Serve with the Arc of East Middlesex.
**Principal Investigators:** Deirdra Murphy, DPT, MS, MHA
Agency: University Massachusetts Lowell
**AWARD:** $1,000
**Type:** Sub grantee from Learn and Serve America Grant
**Grant Period:** 7/1/10-6/30/11
The goal of the grant is to fund a collaborative partnership between the Arc of East Middlesex and graduate PT students enrolled in a service-learning course. The students will develop and implement a wellness curriculum for individuals living in residential programs at the Arc of East Middlesex. The curriculum will include training materials and equipment for future implementation by direct support personal (DSP) for individuals in a train-the-trainer model.

2010 Learn and Serve with the Lowell Senior Center.
**Co-Principal Investigators:** Deirdra Murphy, DPT, MS, MHA; Andrew Hosteler, Ph.D
Agency: University Massachusetts Lowell
**AWARD:** $1,000
**Type:** Sub grantee from Learn and Serve America Grant
**Grant Period:** 7/1/10-6/30/11
The goals of this grant seeks support for an innovative, interdisciplinary service-learning project bringing together graduate students in Community Social Psychology (CSP) and undergraduate Exercise Physiology (EP) majors, in partnership with the Lowell Senior Center. The partnership builds on the Lowell Seniors Count project, which identified a need for further assessment of and outreach to seniors most at risk for social isolation, a well-established predictor of negative health outcomes.

2010 Universal Design in the Promotion of Health: Using Technology in Course Development
**Co-Principal Investigators:** Deirdra Murphy, DPT, MS, MHA; Ashleigh Hillier, Ph.D
Agency: University of Massachusetts Lowell
**AWARD:** $1,500
**Type:** Internal: Innovations in Teaching with Technology Grant
**Grant Period:** 7/1/10-6/30/11
The goal of the grant is to fund course development, providing an interdisciplinary perspective and framework for assistive technology (AT) and disability in a variety of environments. The course development will incorporate the latest technological advances designed to enhance student learning and engagement.

2009 Healthy Campus, Healthy Communities.
**Co-Principal Investigators:** Deirdra Murphy, DPT, MS, MHA; Cynthia Ferrara, Ph.D
Agency: University of Massachusetts Lowell
**AWARD:** $3,000
**Type:** Internal: SHE SEED Grant
**Grant Period:** 7/1/09-6/30/10
The goal of this grant was to support collaboration with the Revolving Museum, Community Teamwork Inc (CTI)'s Farmer's Market, and the City of Lowell, and the Greater Lowell Health Alliance to promote a healthier community.
2009  **Fit and Fun: A physical activity and relaxation for community dwelling and underserved youth on the autism spectrum.**

**Co-Principal Investigators:** Investigators: Deirdra Murphy, DPT, MS, MHA; Ashleigh Hillier, Ph.D

**Agency:** University of Massachusetts Lowell  
**AWARD:** $5,000  
**Type:** Internal: Public Service Endowment Grant  
**Grant Period:** 7/1/09-6/30/11

The goal of this study is to evaluate the efficacy of a physical exercise and relaxation program intervention for adolescents and young adults on the autism spectrum using cortisol levels and heart variability combined with qualitative measures.

2009  **Village Empowerment Course Proposal**

**Principal Investigators:** John Duffy, Ph.D.; **Co-Investigator:** Deirdra Murphy, DPT, MS, MHA

**Agency:** University of Massachusetts Lowell  
**AWARD:** $5,000  
**Type:** Internal: Teaching and Learning  
**Grant Period:** 7/1/09-6/30/10

The goals of the proposal support the development and implementation of a multi-disciplinary course on global poverty with a specific focus toward the villages in Peru, as representative of the poor in half the world.

2009  **Strategies for Success in the Freshman Year: Improving Academic Performance and Student Retention in the Exercise Physiology Program.**

**Principal Investigators:** Cynthia Ferrara, Ph.D.; **Co-Investigator:** Deirdra Murphy, DPT, MS, MHA

**Agency:** University of Massachusetts Lowell  
**AWARD:** $2,500  
**Type:** Internal: Teaching and Learning Grant  
**Grant Period:** 7/1/09-6/30/10

The goal of this proposal supports the pedagogical repertoire for faculty development, create more engaging entry points to the Exercise Physiology major, and generate coherent linkages for Exercise Physiology students and appropriate assessment for student success and learning.

2008  **Pediatric Create Your Weight Program**

**Principal Investigator:** Lowell General Hospital, **Consultant:** Deirdra Murphy DPT, MS, MHA

**Agency:** American Heart Association (AHA)  
**AWARD:** $7,600  
**Type:** External: AHA Community Impact Grant  
**Grant Period:** 09/01/08-12/30/09

The goal of the proposal is to measure the effect of a pediatric program to reduce obesity and overweight in Latino children.

2008  **Action for Community Centered Elder Nutrition Training (ACCENT)**

**Principal Investigator:** Chelmsford Senior Center, **Consultant:** Deirdra Murphy DPT, MS, MHA

**Agency:** Massachusetts Department of Public Health  
**AWARD:** $3,000  
**Type:** External  
**Grant Period:** 06/01/08-06/30/09

The goal of the funding supports a training project educates and encourages healthy behaviors in elders.
2007  Model for Campus Partnerships for Better Health.  
**Co-Principal Investigators:** Deirdra Murphy, DPT, MS, MHA, Cynthia Ferrara, Ph.D  
Agency: University of Massachusetts Lowell  
**AWARD:** $15,000  
**Type:** Internal: SHE Signature Initiative Grant  
**Grant Period:** 7/1/07-6/30/09
The goal of this grant funded a community-wide effort to increase physical activity and improve nutrition for students, faculty, and staff on a University Campus.

2007  Interdisciplinary community based fitness program integrated in an EP capstone course.  
**Co-Principal Investigators:** Ashleigh Hillier, Ph.D; Deirdra Murphy, DPT, MS, MHA  
Agency: University of Massachusetts Lowell  
**AWARD:** $2,456  
**Type:** Internal: Explorations in Teaching and Learning  
**Grant Period:** 7/1/07-6/30/08
The goal of this proposal evaluated the efficacy of a physical exercise and relaxation program intervention for adolescents and young adults on the autism spectrum.

**Principal Investigators:** John Duffy, PhD; **Co-Investigators:** Deirdra Murphy, DPT, MS, MHA, Nicole Champagne, Ed.D  
Agency: University of Massachusetts Lowell  
**AWARD $9,600**  
**Type:** Internal: Joseph P. Healey and Public Service Endowment Grant  
**Period:** 7/1/07-6/30/09
The goal of this grant supported an interdisciplinary international service-learning experience for students and faculty in Peru.

2007  March into May.  
**Principal Investigator:** Deirdra Murphy, DPT, MS, MHA  
Agency: University of Massachusetts Lowell  
**AWARD:** $500  
**Type:** Internal: SHE Creative Fund Grant  
**Grant Period:** 1/1/07-6/30/07
The goal of this grant funding supported a walking program on a University Campus.

2005  Perceptions of Adolescent Overweight and Obesity in the Community.  
**Principal Investigator:** Deirdra Murphy  
Agency: University of Massachusetts Lowell  
**AWARD:** $ 6,588  
**Type:** Internal: Joseph P. Healey Endowment  
**Grant Period:** 06/01/05-04/30/07
The goal of this research project is qualitative study of adolescents and community key informants on adolescent overweight and obesity.

2002  Introduction to Youth to Careers in Physical Therapy: A Strategy for Recruitment of Professionals from Underrepresented Cultural Backgrounds  
**Principal investigator:** Deirdra Murphy  
Agency: University of Massachusetts Lowell  
**AWARD $900**  
**Type:** Internal: Council on Diversity and Pluralism  
**Grant Period:** 06/01/2002-05/30/03
The goal of this grant funded a career exploration program for Sullivan Middle School students to attend an all day program coordinated by the principal investigator and implemented by physical therapy students.
Functional Outcomes in Children with Disabilities

Principal Investigator: Deirdra Murphy
Agency: University of Massachusetts Lowell
Type: Internal; Faculty - Student Collaborative Research Grant
Grant Period: 06/01/1998-05/30/99

The goal of this grant funding supported research funding for measuring the effect of hippotherapy on functional outcomes using the Goal Attainment Scale for children with physical disabilities.

Invited Professional Presentations:


2010 Presenter, "University Massachusetts Lowell Faculty Development Conference 2010", April 8, 2010.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Presenter, Integrating Service-Learning into an Existing Course. Faculty Development Center, August 26th, 2009.</td>
</tr>
<tr>
<td>2004</td>
<td>Presenter, Clinical Education: 2:1 Model, Tufts New England Medical Center, Boston, MA</td>
</tr>
<tr>
<td>2003</td>
<td>Presenter, Center Coordinator Clinical Education Workshop, Utilization of the Clinical Performance Instrument, Lowell MA</td>
</tr>
<tr>
<td>2001</td>
<td>Presenter, Hippotherapy: A Physical Therapy Modality, Hesser College Physical Therapy Assistant Program, Manchester, NH</td>
</tr>
<tr>
<td>1999</td>
<td>Presenter and Case Development, Deirdra Murphy, Pam DiNapoli, RN, Multidisciplinary Education. Southern New Hampshire Area Health Education Center, September 21, 1999</td>
</tr>
<tr>
<td>1999</td>
<td>Presenter, Current Issues, Trends in School-Based Physical Therapy, Boston Public Schools, Boston, MA</td>
</tr>
</tbody>
</table>

**Presentation/Dissemination for Academic or Community Audiences**

(*Denotes community member, +denotes presenter. ++denotes student engagement)

<table>
<thead>
<tr>
<th>Year</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Radio Talk Show Guest, + Deirdra Murphy, WCAP 980AM “There’s an App for Exercise”, November 20th, 2012</td>
</tr>
<tr>
<td>2012</td>
<td>Clinical Teaching Workshop Training, +Deirdra Murphy, Universidad Mariano Galvez (UMG), Guatemala City and Coban, Guatemala, June 23-30, 2012.</td>
</tr>
<tr>
<td>2011</td>
<td>Distinguished Speaker Series; Physical Therapy &amp; Fitness for Individuals with Intellectual/Developmental Disabilities, +Deirdra Murphy, +James Gleason, ++ Maria Fragala-Pinkham. Special Olympic Massachusetts, Marlborough, MA. April 16th.</td>
</tr>
<tr>
<td>2010</td>
<td>Radio Talk Show Guest, + Deirdra Murphy, WCAP 980AM &quot;Healthy Holidays&quot;, November 23rd, 2010</td>
</tr>
<tr>
<td>Year</td>
<td>Event Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------------</td>
</tr>
<tr>
<td>2009</td>
<td>Family Workshop Training (2 day), +Deirdra Murphy, ** Mary Ann Hibino, *+Dr. Jean Paul Dedham, Asociación Niños Especial, Siuna, Nicaragua. June 17th, 2009</td>
</tr>
<tr>
<td>2008</td>
<td>Radio Talk Show Guest, +Deirdra Murphy, WUML 90.5FM “Bike Share Program”, October 24th, 2008</td>
</tr>
<tr>
<td>2008</td>
<td>American Physical Therapy Association Massachusetts Chapter Newsletter V 32 (3) August 2008</td>
</tr>
<tr>
<td>2008</td>
<td>Teacher Workshop Training, +Deirdra Murphy, ** Lyvier Conss, Institucion Educativa Especial No. 04 Virgen Del Rosario, Huarmey, Peru. June 10th, 2008</td>
</tr>
<tr>
<td>2007</td>
<td>Teacher Workshop Training, +Deirdra Murphy, ** Lyvier Conss, Institucion Educativa Especial No. 04 Virgen Del Rosario, Huarmey, Peru. June 13th, 2007</td>
</tr>
<tr>
<td>2007</td>
<td>Radio Talk Show Guest, +Deirdra Murphy, WUML 90.5FM “National Physical Therapy Month”, October 24th, 2007</td>
</tr>
<tr>
<td>2007</td>
<td>Lowell Public School Principal Leadership Academy, “Safe Routes to School” +Deirdra Murphy, *Davida Eisenburg</td>
</tr>
</tbody>
</table>
Non-Teaching Activities Professional Clinical Experience

2011-2012 Physical Therapist, PerDiem Radius Health Care, Northwood, Skilled Nursing Facility. Lowell, MA
2001-2003 Physical Therapist, (Hippotherapy), Ironstone Farm, Andover, MA
1996-2001 Center Coordinator Clinical Education, Clinical Instructor, Physical Therapy Students, Lowell Public Schools, Lowell MA
1991-1995 Physical therapy Consultant, Andover Public Schools, Andover, MA
1987-1990 Physical Therapist (Home Care), Alternative Care, Lowell, MA
1984-1987 Physical Therapist, Greater Lawrence Educational Collaborative, Lawrence, MA
1984-1987 Physical Therapist, (Per Diem Inpatient and Outpatient), Emerson Hospital, Concord, MA
1983-1984 Physical Therapist (School Services), Easter Seal Society, Boston, MA
1983-1983 Physical Therapist (Home Care), Newton-Wellesley Visiting Nurse Association, Newton, MA
1982 –1982 Prenatal Exercise Instructor, Young Women’s Christian Association, Houston, TX
1981-1982 Physical Therapist (Inpatient), Texas Medical Center, Houston, TX

Consultative and Advisory Positions Held

2011 New England Regional Special Olympics FUNfitness Clinical Coordinator
2009 Early Intervention Training Center Advisory Task Force
2008-2009 Member and Graduate, Lowell Team, Massachusetts Forum for Creating Healthy Communities VI. Partnership for Healthy Communities, Boston, MA
2006-present Co-chair Health Weight Task Force, Greater Lowell Health Alliance.
2008-present Clinical Director FUNFitness, Special Olympic Massachusetts Special Olympic Healthy Athlete
2008-present Member, Department Public Health Higher Education Early Intervention Task Force
2004-2005 President of PT / OT Division, American Association of Mental Retardation (AAMR)
2006-2007 Member, Greater Lowell Community Foundation Youth and Nutrition Group
2006 Member, Lowell Adult Basic Education Community Planning Partnership
2001-2004 Chair Workshop Committee, Secretary and member New England Consortium-Academic Coordinators Clinical Education (NEC-ACCE)
1994-2001 Member, Ironstone Therapeutic Riding Research Committee

Workshops Conducted/Organized

2013 Organizer and FUNFitness Special Olympics Northeast Clinical Director, 2013
MA Senior Sport Games. Healthy Athletes FunFitness Screening, Barnstable, MA, October 19th, 2013.

2012 Organizer and FUNFitness Special Olympics Northeast Clinical Director, 2012 MA
Winter Games. Healthy Athletes FunFitness Screening, Auburn, MA. March 10th, 2012.

2012 Organizer and Trainer, APTA Certified Clinical Instructor Trainer, APTA Clinical

2011 APTA Certified Clinical Instructor Trainer, APTA Clinical Instructor Education and
Credentialing Course, October 15th, 16th, 2011. Massachusetts College of Pharmacy and Health Sciences, Worcester, MA.

2011 Organizer and FUNFitness Special Olympics Northeast Clinical Director, 2011
Train the Trainer. Healthy Athletes Fun Fitness Screening, Marlboro, MA. September 16th, 17th, 2011.

2011 Organizer, National Science Foundation US-Turkish Assistive Technology Workshop,
June 6-8th, Istanbul, Turkey.

2011 APTA Certified Clinical Instructor Trainer, APTA Clinical Instructor Education and
Credentialing Course, March 25th, 26th, Haverhill, MA.

2010 APTA Certified Clinical Instructor Trainer, APTA Clinical Instructor Education and
Credentialing Course, October 16th, 17th, Northeastern, MA.

2010 FUNFitness Special Olympics Massachusetts Clinical Director, 2010 Senior Sports

2010 FUNFitness Special Olympics Massachusetts Clinical Director, 2010 Massachusetts

2010 FUNFitness Special Olympics Massachusetts Clinical Director, 2009 Senior Sports

2009 FUNFitness Special Olympics Massachusetts Clinical Director, 2009 Senior Sports

2009 FUNFitness Special Olympics Massachusetts Clinical Director, 2009 Soccer
Tournament. Healthy Athletes Fun Fitness Screening, Byfield MA. October 17th, 2009.

2009 FUNFitness Special Olympics Massachusetts Clinical Director, Western Sectional
Games 2009. Healthy Athletes Fun Fitness Screening, Holyoke, MA. May 9, 2009.

2009 APTA Certified Clinical Instructor Trainer, APTA Clinical Instructor Education and
Credentialing Course, March 12, 13th, 2009, Lowell, MA.

2008 FUNFitness Special Olympics Massachusetts Clinical Director, 2008 Soccer
Tournament. Healthy Athletes Fun Fitness Screening, Byfield, MA, November 2, 2008.

2008 APTA Certified Clinical Instructor Trainer, APTA Clinical Instructor Education
and Credentialing Course, March 20, 21st, 2008, Lowell, MA.
2008 FUNFitness Special Olympics Massachusetts Clinical Director, South Section Track & Field Healthy Athletes Fun Fitness Screening, State Games Brockton, MA, May 10th, 2008.


2007 APTA Certified Clinical Instructor Trainer, APTA Clinical Instructor Education and Credentialing Course, October 27, 28, 2007 Gloucester, MA.

2007 APTA Certified Clinical Instructor Trainer, APTA Clinical Instructor Education and Credentialing Course, March, 2004, Pittsfield, MA.

2006 Organizer, Lowell: A Walkable Community. Lowell General Hospital, May 8th, 2006

2006 Organizer, Strategic Planning for Walkable Communities, University Massachusetts Lowell, May 8th, 2006

2006 Organizer, Walking to Better Health, Lowell General Hospital, May 22nd, 2006

2006 APTA Certified Clinical Instructor Trainer, APTA Clinical Instructor Education and Credentialing Course, June, 2006, Barre, VT.

2005 APTA Certified Clinical Instructor Trainer, APTA Clinical Instructor Education and Credentialing Course, Springfield, MA,

2004 APTA Certified Clinical Instructor Trainer, APTA Clinical Instructor Education and Credentialing Course, June 28, 29th, 2004

INSTRUCTION RELATED ACTIVITY

UML Teaching Activities (Courses revised whenever taught, number of years and level)

Seminars
* Interdisciplinary Seminar: Collaborative Care - Nursing and Physical Therapy Spring 2007 with Dr. Todd Hultman

Undergraduate Courses:
38.420 Independent Study in Exercise Physiology
Spring 2005-2006

38.421 Advanced Study in Exercise Physiology
Spring 2007

38.412 Exercise Physiology Clinical Practicum
Spring 2011, Fall, 2011, Spring 2012

38.418 Exercise Physiology Senior Seminar
Fall 2008, Spring 2009 Co-teaching

59.101-211 Values and Creative Thinking: Health and Environment
Fall 2008 Provost Initiative: Freshman Learning Communities.

59.356-201 Village Empowerment: Overcoming Global Poverty
Spring 2010, Spring 2011 Team Teaching and NCIIA Grant Funded
*HON 110-303  Freshman Year Seminar Honors: Text in the City
Fall 2010  Provost Initiative: Freshman Learning Communities

*30.309-201  Universal Design in Health Promotion
Spring 2012, Spring 2013, Spring 2014

**Graduate Courses:**

34.704  Healthcare Issues: Impact on Clinical Practice
         Summer 06, Transitional Doctoral Program
         Online Course, CSCE

34.641  Business Skills in Physical Therapy
         Hybrid Course (Face to face and distance learning)

34.605  Physical Therapy Interventions I
         Fall 2004-present

34.607  Physical Therapy Interventions Laboratory I
         Fall 2004-present

34.642  Health Care Issues in Physical Therapy
         Hybrid Course (Face to face and distance learning)

* 34.648  Service Learning in Physical Therapy
         Spring 2004-present

34.615  Clinical Educational Seminar I
         Fall 2001-2004

34.634  Clinical Educational Seminar II
         Fall 2001-2004

34.635  Clinical Educational Seminar III
         Spring 2001-2004

34.650  Clinical Education Experiences I
         Summer 2001-2004

34.644  Clinical Education Fieldwork Experience I
         Spring 2002-2004

34.562  Clinical Education Experiences II
         Summer 2001-2004

34.653  Clinical Education Experiences III
         Summer 2001-2004

34.654  Clinical Education Experiences
         Spring 2002-2004
34.633 Pediatric Laboratory Instructor  
Fall 1996-2000  

*Courses I have developed

**Additional Instructional Activities**

2013-2014 MA Board of Higher Education Performance Incentive Fund Vision Grant Assessment Working Group

**Additional Teaching Activities**

- PTH5160 Psychosocial Aspects of Health Care, Northeastern University Spring 2012
- PTHG174 Psychosocial Management in Physical Therapy, Northeastern University Spring 2007
- PTHU404 Psychosocial Management in Physical Therapy, Northeastern University Spring 2007

**Clinical Education Supervision**

2004-2008 Physical Therapy Clinical Education Experience Site Visits, Fall and Spring Semester

**Doctorate in Physical Therapy Research Project Advising**

- **2012-2014** Caitlyn Denehy, Colleen Giansiracusa, Sydney Harrington. Is pilates exercise effective in reducing falls and improving balance in the elderly? A systematic review
- **2012-2014** Brianne Bozzella, Kim Gada. A community-based social networking intervention to increase walking in dog owners. (Co-advisor with C. Ferrara)
- **2011-2013** Celine DiMaggio, Heather Jones, Shannon McBride, Danielle O'Shea. A community-based social networking intervention to increase walking in dog owners. Analysis of barriers to dog walking in two Massachusetts communities. (Co-advisor with C. Ferrara)
- **2011-2013** Thomas Bryne, Brendan Connor. Exercise and Relaxation Effects on Cortisol levels and Heart Rate Variability for Young Adults on the Autism Spectrum.
- **2010-2012** Jillian Cunningham, Alyson O’Connell, Rachel DiChiara. The Effectiveness of Yoga as Treatment For Balance Dysfunction in Community-Dwelling Adults: A Systematic Review.
- **2010-2012** Erin Foley, Corinne Lee. Perceptions of Health on a College Campus: A longitudinal study. (Co-advisor with C. Ferrara)
- **2010-2012** Erin Forsythe, Shannon McInnis. Exercise and Relaxation Effects on Cortisol levels and Heart Rate Variability for Young Adults on the Autism Spectrum.
- **2009-2011** Nicolas Baltisberger, Amanda Lopes, Rebecca McCabe. Exercise and Relaxation Effects on Cortisol levels and Heart Rate Variability for Young Adults on the Autism Spectrum.
- **2009-2011** Laura Bowen, Christine Laasko, Jenna Picco. Perceptions of Health on a College Campus.
**Community and Social Psychology Masters Program Thesis Advising**


**Undergraduate Honors Research Advising**

2014 Courtney Clark. “Perceptions of Students, Faculty and Staff Regarding Physical Accessibility on a University Campus” 17th Annual Student Research Symposium, University of Massachusetts Lowell, April 22, 2014

2010 Danielle O'Shea. “An examination of the improvement of stairwell appearance and its effectiveness on stair use on a college campus.” Massachusetts Statewide Undergraduate Research Conference, Amherst, MA, April 23rd, 2010

**Community Based Education**

Engagement with the community for student learning is a primary focus of my teaching for the undergraduate course, Independent Student in Exercise Physiology, 38.420 and the graduate course, Service Learning in Physical Therapy, 34.648. I have developed and facilitated learning opportunities with the following community partners:

<table>
<thead>
<tr>
<th>Bartlett School-University Partnership School</th>
<th>Lowell Community Charter School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campus Recreation Center</td>
<td>Ironstone Farm</td>
</tr>
<tr>
<td>University Massachusetts Lowell Human Resources</td>
<td>D'Youville Nursing Home</td>
</tr>
<tr>
<td>City of Lawrence Senior Center</td>
<td>Life Links</td>
</tr>
<tr>
<td>Lawrence YMCA</td>
<td>Peru Village Empowerment Project (Interdisciplinary)</td>
</tr>
<tr>
<td>Lawrence Boys and Girls Club</td>
<td>CLASS, Inc</td>
</tr>
<tr>
<td>Lawrence YWCA</td>
<td>Lowell Community Health Center</td>
</tr>
<tr>
<td>Family Service. Inc</td>
<td>Life Care Centers of Merrimack Valley</td>
</tr>
<tr>
<td>Lowell Community Health Center COBWEB</td>
<td>Demonstration School</td>
</tr>
<tr>
<td>Aspirations Program</td>
<td>Anne Sullivan Center</td>
</tr>
<tr>
<td>Chelmsford Senior Center</td>
<td>Safe Routes to School</td>
</tr>
<tr>
<td>Lowell Police Department</td>
<td>Lowell Adult Education Center</td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>Abraham Lincoln Elementary School</td>
<td>Lowell Senior Center</td>
</tr>
<tr>
<td>Holy Trinity Eastern Orthodox Nursing and Rehabilitation Center</td>
<td>Dance Techniques Studio</td>
</tr>
<tr>
<td>Rodgers Middle School, Lowell Public Schools</td>
<td>Hermanos Por La Salud Nicaragua</td>
</tr>
<tr>
<td>Special Olympic Massachusetts FUN! Fitness</td>
<td>City of Somerville Health Department</td>
</tr>
<tr>
<td>Eastern Massachusetts Association Retarded Citizens (EMARC)</td>
<td>Home Away from Home</td>
</tr>
<tr>
<td>Veterans Administration</td>
<td>Lowell High School</td>
</tr>
<tr>
<td>International Medical Equipment Collaborative (IMEC)</td>
<td>UMass Lowell Human Resource Department</td>
</tr>
<tr>
<td>Disable the Label Club</td>
<td>Daley Middle School</td>
</tr>
<tr>
<td>NSF Assistive Technology Conference</td>
<td>University Massachusetts Medical Center</td>
</tr>
<tr>
<td>Lowell General Hospital –Community Health Assessment</td>
<td>South Bay Early Intervention</td>
</tr>
<tr>
<td>Chelmsford High School</td>
<td>Young Parenting Program</td>
</tr>
<tr>
<td>HOSA MA Conference</td>
<td>Bartlett Tree Company</td>
</tr>
</tbody>
</table>

**Academic Advising**


**Directed Studies**

Spring 14  34.421-705 Directed Study in Health Promotion
- Family Handbook for Physical Therapy Services at Ironstone Farm
Spring 14  34.421-705 Directed Study in Health Promotion
- Exercise Program for Individuals with Intellectual Disabilities
Fall 13  34.421-705 Directed Study in Health Promotion
- Exercise Program for Individuals with Intellectual Disabilities
Spring 13  34.421-705 Directed Study in Health Promotion
- Physician Resource Guide for Physical Activity
Spring 12  34.421-705 Directed Study in Health Promotion
- Lowell’s Health Community
Spring 12  38. 421-705 Directed Study in Health Promotion
- Dog Walking Research Study
Spring 12  38. 421-705 Directed Study in Health Promotion
- Qualitative Research Fit and Fun
Spring 12  38. 421-705 Directed Study in Health Promotion
- Fit and Fun
Fall 11  34.421-505 Directed Study in Health Promotion
- Walkability and Bikeability Assessment UMass Lowell
Spring 11  34.421-505 Directed Study in Health Promotion
- UMass Lowell Walking Program
Spring 11  38. 421-705 Directed Study in Health Promotion
J.G. Pyne Middle School, Lowell MA Fitness Program
Spring 10  34.421-505 Directed Study in Health Promotion.
         Honors Research and Thesis Project
Spring 10  38.421-705 Directed Study in Health Promotion.
         Eastern Massachusetts Association Retarded Citizens. Fitness Program for youth with
         autism ages 4-7.
Fall 10   34.421-505 Directed Study in Health Promotion.
         UMass Healthy Eating Vending Machine Assessment
Spring 09  38.421-705 Directed Study in Health Promotion.
         Fit and Fun
Spring 09  38.421-705 Directed Study in Health Promotion.
         Barlett School Afterschool Fitness Program
Fall 08   38.421-705 Directed Study in Health Promotion.
         Barlett School Afterschool Fitness Program

Guest Lecturer
2013     EP Freshman Seminar, 38.101, Undergraduate
2012     EP Freshman Seminar, 38.101, Undergraduate
2011     EP Freshman Seminar, 38.101, Undergraduate
2011     Global Health, 30.308, Undergraduate
2011     Disability and Human Services, 47.502, Graduate
2010     Global Health, 30.308, Undergraduate
2008     Disability and Human Services, 47.502, Graduate
2007     Health Policy Course, 32.625, Graduate
2007     Psychology of Developmental Disabilities, 47.362, Undergraduate
2006     Models and Measurement in Disability, 34.410. Graduate
2006-2012 Research Methods, 34, 616, Undergraduate
1996-2000 Physical Therapy in the School Setting, 34. 631, Graduate

SERVICE ACTIVITIES

Services to the University/College/School on Committees/Councils/Commissions

University Service
2014     Appointed Faculty College Health Sciences Representative to the University
         Core Curriculum Committee.
2014-present Invited, UMass Lowell Assistive Technology/Universal Design Task Force
2013-present Invited, Campus Accessibility Physical Improvement Project
2011-present Director, Assistive Technology Research Center/Working Group
2011-present Participating faculty member for the Fine Arts, Humanities, and Social
         Sciences (FAHSS) interdisciplinary programs- Disabilities Studies Minor
         Program.
2010 2014 Appointed Faculty College Health Sciences Representative to the University
         General Education Coordinating Committee.
2009 2010 Appointed Member of Strategic Planning Commission as a member of the
         Corporate Partnerships & Urban Engagement Committee.
2008 2009 Appointed Member of the Outreach and Engagement Council, Appointment
         5/08
College Health Sciences Service
2013-present College Health Sciences Personal Committee
2013-present College Health Sciences Leadership Team
  BiWeekly meetings for College policy, procedure, assessment
2013 SHE Retreat Invited Speaker, Deirdra Murphy, Valerie King, “Global Health
  Experiences: Making it Happen”. May 21st, 2013
2012-2013 Elected Member, SHE Evaluation Instrument Committee
2012-2013 Member, SHE BS-MS Public Health Degree Task Force
2010-present Member, SHE International Committee
2008-2010 Faculty Representative, SHE Scholars
Spring 2007 Coordinator, SHE “March into May”, College Physical Activity Program
2006-2007 Chair Community Engagement Committee, School of Health and Environment
2006 SHE Mission Task Force Committee Member, School of Health and Environment
2005 SHE Faculty Representative, SHE Snapshot Weekend, November
2004-2005 New Building and Space Committee, School of Health and Environment
2004-2005 Service Center Committee, School of Health and Environment

Physical Therapy Department Service (*denotes community member involvement,
+denotes student engagement)

2014 Faculty Search Committee
2010-2013 Appointed Chair DPT Curriculum Committee
2010 Faculty Search Committee
2009 Physical therapy program representative to the Commission on
  Accreditation in Physical Therapy Education (CAPTE) Self-Study Workshop
  in Combined Sections Meeting of the American Physical Therapy
  Association, February 2009
2008 Faculty Liaison PT Month, +PT Student Club, *Greater Lowell Health Alliance,
  *City of Lowell, Community Walking Informational Booth, City of Lowell,
  October 15th, 2008
2008-present Member, DPT Curriculum Committee, Department of Physical Therapy
2007-present Member, DPT Advisory Board
2007, 2008 Faculty Liaison PT Month City of Lowell Proclamation
2007-2008 Faculty Search Committee, Department of Exercise Physiology
2006-2007 Faculty Liaison, Development Inaugural *Physical Therapy Advisory Board,
  May 24th, 2007
2006 Coordinator, Physical Therapy Department 25th Anniversary Celebration
2006-present Exercise Physiology Curriculum Committee, Department of Physical Therapy
2004-2005 Post Professional DPT Sub Committee, Department of Physical Therapy
2004-2005 Graduate Research Day Coordinator, Department of Physical Therapy
2004-2006 DPT Curriculum Committee, Department of Physical Therapy
2002-2003 Faculty Search Committee, Department of Physical Therapy
Other University Service  
(*denotes community member involvement, +denotes student engagement)

2014 UMass Lowell Accepted Student Welcome Day, April 12, 2014  
2014 College of Health Sciences Research Day, March 26, 2014  
2013 UMass Lowell Accepted Fall Preview Day, November 23 2013  
2012 School of Health and Environment Research Day, April 27, 2012  
2012 UMass Lowell Accepted Student Welcome Day, March 31, 2012  
2012 Greater Lowell Health Alliance Strategic Planning Meeting, February 29th, 2011  
2011 UMass Lowell Faculty Research Conference. Lowell, MA, October 6, 2011  
2011 School of Health and Environment Research Day, April 29, 2011  
2011 UMass Lowell Accepted Student Welcome Day, April 2, 2011  
2010 University Massachusetts Lowell Convocation, August 31st, 2010.  
2010-12 Participating faculty member for the Fine Arts, Humanities, and Social Sciences (FAHSS) interdisciplinary programs- Disabilities Studies Minor Program

2010 *+Multidisciplinary Team Member (UML PT students and community members), Village Empowerment: Peru Project, June 4-June 13th, 2010  
http://energy.caeds.eng.uml.edu/Peru/index.shtm  
http://murphyperu.wordpress.com/  

2010 Appointed Member UMass Lowell Provost Turkey International Partnership Delegation, Istanbul and Ankara, Turkey. February 12-20th, 2010  

2009-12 Co-Facilitator, Interdisciplinary Exchange & Advancement Community (IDEA - Community) Provost Initiative


2007 University Massachusetts Lowell Convocation, September 2, 2008  
2008 *+Multidisciplinary Team Member (UML PT students and community members), Village Empowerment: Peru Project, June 1-June 14th, 2008  
http://energy.caeds.eng.uml.edu/Peru/index.shtm  
http://murphyperu.wordpress.com/  


2008 Chancellor Appointments, Ad Hoc Committee on University Avenue Safety  
2007 University Massachusetts Lowell Convocation, September 4, 2007  
2007 Presenter, + Supervisor Graduate and Undergraduate Student Presenters, College Prep and Young Scholars Program, UML, July 23-25, 2007  
2007 *+Multidisciplinary Team Member (UML PT students and community members), June 5-June 16th, 2007 http://energy.caeds.eng.uml.edu/Peru/index.shtm

2006-2007 Faculty Interviewee, Massachusetts College Compact: College Access Fellows Program, Student video project “mapping” campus and college access resources and challenges.
Community Service

2014 Member, Professional Advisory Council for Circle Home.
2012 Volunteer, Health Volunteer Oversees, Guatemala Program, June 23-June 30th,
2010-present Northeast Regional Clinical Director FunFitness Clinical Director Healthy
Athletes Special Olympics
2005-2012 Appointed Member, Northeast Regional Quality Council Department
Developmental Services (DDS), Appointed Member
2004 Volunteer, Special Olympics Massachusetts State Summer Games, Boston MA. June
20th, 2004
2002-present President, Lowell Area Citizens Advisory Board, Department Developmental
Services (DDS), Lowell, MA
UNIVERSITY OF MASSACHUSETTS LOWELL
Personnel Form #6

COMPREHENSIVE PROFESSIONAL VITAE
(Full-Time Faculty/Librarians)

DATE:  8/6/2014

NAME: Wu Yi-Ning Winnie
(last) (first) (middle)

Department(s): Physical Therapy

College(s) or Service Unit(s): Health Science

Rank or Title: Assistant Professor Field Neuro-Rehabilitation

A. EDUCATION AND ACADEMIC QUALIFICATIONS

1. Education (specify degree institutions, dates, honors, major fields of study, etc.)

   2001-2007 Ph.D. National Cheng Kung University, Tainan, Taiwan Institute of Biomedical Engineering
   Dissertation: Quantification of abnormal muscle tone in animal model and in clinical setting.
   Advisor: Professor Jia-Jin Chen

   1996-2000 B.S. National Cheng Kung University, Tainan, Taiwan Department of Physical Therapy

2. Academic Experience (length of time at each institution, rank(s) held, etc.)

   Sep 2013- present Assistant Professor Department of Physical Therapy, University of Massachusetts Lowell (Lowell, MA)
   Aug 2010-Aug 2013 Post-doctoral Research Associate Neuroscience Department, Brown University (Providence, RI)
   June 2008- July 2010 Post-doctoral fellow Sensory Motor Performance Program, Rehabilitation Institute of Chicago (Chicago, IL)
   Dec 2005- June 2008 Visiting Scholar Department of Physical Medicine and Rehabilitation, Northwestern University (Chicago, IL)
   Sep 2001- Nov 2005 Graduate Research Assistant Institute of Biomedical Engineering, National Cheng Kung University
B. PROFESSIONAL ACTIVITIES

1. Professional Association Participation (state nature of participation: paper read, panel discussant, office holder, etc.)

   i) Membership in Professional Societies

      American Academy for Cerebral Palsy and Developmental Medicine
      American Society of Neurorehabilitation

   ii) Journal reviewer and conference paper referee for:

      Developmental Medicine and Child Neurology
      European Journal of Neurology
      Physiological Measurement
      Engineering in Medicine and Biology Conference

2. Professional Honors and Awards

   2010   Sarah Baskin Award for Excellence in Research, 1st place. Rehabilitation Institute of Chicago.
   2009   Switzer Fellowship Award, National Institute of Disability Research and Rehabilitation (NIDRR), Department of Education
   2007   Awardee of Student Travel Scholarship in 61th AACPDM Annual Meeting
   2005   Li Foundation Fellow
   2003   Received the Podium Paper Award for the paper entitled “Velocity-dependent ankle torque combined with electroneurography in animal model” at the Biomedical Engineering Society Annual Symposium, held in Yang Ming University, Taipei
   2002   Winner of the Design of Associative Devices for the Disabled at the Fourth TIC100 Technology Innovation Competition

C. RESEARCH

1. Grants & Contracts

   | Pilot multi-center evaluations of reflex and nonreflex changes in cerebral palsy using a portable device |
   | Role: Site PI | Period: 4/1/2013-12/31-2014 | Amount: $ 6,714 |
   | Source of Support | American Academy of Cerebral Palsy and Developmental Medicine (sub-contract by the Rehabilitation Institute of Chicago) |
EEL: a novel approach for home monitoring of upper extremity activities using combined EMG, EKG and Limbs motion (co-PI: Sean Collins)

| Role: PI | Period: 6/1/2014-5/31/2016 | Amount: $ 10,000 |
| Source of Support | Internal seed grant, the vice provost for research office, UML |

2. Academic & Professional Publications (Citations must include full and exact references; reprints of publications must be available for submission and must be submitted when requested. Use back of this page if additional space is needed.)

i) Refereed Journal Publications


catch angle on velocity. Developmental Medicine and Child Neurology, 52(6), 563-569.


ii) Patent


iii) Book section


iv) Referred Conference Papers


2. Wu, Y.-N., Khan-Williams, S., and Kerman, K.L. Figure 8 paradigm for quantitative wrist evaluation with motion sensor systems, 66th Annual Meeting of the AACPDM. Toronto Canada. 2012


v) Other presentations

3. Poster entitled “Gear research towards community-based neurorehabilitation” was presented in 3rd Annual Symposium “Community Engaged Research: Exploring the reach, impact and value” sponsored by Center for Clinical Translational Science in UMass Medical School, Worcester, MA

4. 2/11/2014 Poster entitled “Using technology to enhance neuroplasticity and to improve motor control” was presented in Faculty Research Symposium sponsored by vice provost in ICC, UML.

5. 3/26/2014 Poster entitled “Using technology to enhance neuroplasticity and to improve motor control” was presented in College of Health Sciences 2014 Research Day and Open House.

3. Other Research or Creative Activities - Performances, Exhibitions, etc. (Copies of unpublished manuscripts, and programs and/or critical reviews of creative activities must be available for submission and must be submitted when requested. Use back of this page if additional space is needed.)

D. INSTRUCTION RELATED ACTIVITY

1. Teaching (Courses taught, number of years, undergraduate-graduate levels, etc.)

<table>
<thead>
<tr>
<th>Course#</th>
<th>Course title</th>
<th>Credit allocation</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>38.317.806</td>
<td>Kinesiology Lab Practical</td>
<td>1 (3 hours)</td>
<td>17</td>
</tr>
<tr>
<td>38.420.201</td>
<td>Advanced Study in Exercise Physiology</td>
<td>3 (3 hours)</td>
<td>34</td>
</tr>
<tr>
<td>38.421.701</td>
<td>Directed Study in Health Promotion</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>34.606.802</td>
<td>Neuroscience Lab</td>
<td>1 (3 hours)</td>
<td>12</td>
</tr>
<tr>
<td>34.616.201</td>
<td>Research Method</td>
<td>3 (3 hours)</td>
<td>34</td>
</tr>
</tbody>
</table>

E. SERVICE ACTIVITIES

1. Committee Activities (Indicate if department, college or university level.)
   i) University level
      2013-current Faculty senate.
   ii) Departmental level
      2013-current Exercise Physiology Curriculum Committee
      2013-current Doctor of Physical Therapy Curriculum Committee
      2014 Tenure-track faculty search committee
## Faculty and Course Evaluation Form

**Do Not WRITE in ID NUMBER AREA**

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Course Title</th>
<th>Date</th>
</tr>
</thead>
</table>

**General Purpose Data Sheet II**

**form no. 70921**

**For use with the Sentry, QScan®, and AS/View® Scanners**

**USE NO. 2 PENCIL ONLY**

<table>
<thead>
<tr>
<th>Excellent (A)</th>
<th>Above Average (B)</th>
<th>Average (C)</th>
<th>Below Average (D)</th>
<th>Poor (E)</th>
</tr>
</thead>
</table>

| The course was well organized and integrated. |
| The course objectives were clearly stated in the syllabus. |
| Course objectives were met. |
| The teaching methods (e.g. lectures, case studies, group activities, service learning) were effective in achieving the course objectives. |
| Instructional materials (e.g. reading assignments, technology) were useful. |
| Requirements for assignments were clearly described. |
| Evaluation methods (e.g. assignments, tests, papers) were based on course/content objectives. |
| The faculty member demonstrated competence in the subject matter. |
| The faculty member was enthusiastic about the subject matter. |
| The faculty member's presentations were clear and well organized. |
| The faculty member helped develop my critical thinking/decision-making skills. |
| The faculty member clarified difficult or confusing material. |
| The faculty member was available for questions and clarification. |
| The faculty member respected students with different points of view. |
| The faculty member was fair in evaluating my learning. |
| The faculty member provided feedback in a timely manner. |
| The faculty member provided feedback in a constructive way. |

**On a scale ranging from Excellent (A) to Poor (E), overall I rate this course:**

**On a scale ranging from Excellent (A) to Poor (E), overall I would rate this faculty member's teaching as:**
Appendix G: Senior Student Exit Surveys
EP Senior Student Exit Survey Tables (2012-2014)

The results of these surveys have been reformatted for ease of interpretation. The following tables show survey question responses with results organized by semester and year. The statement beneath the tables reiterates the data presented in the AQAD self-assessment.

1. What are your plans following graduation from UML EP program? (Responses were not mutually exclusive)

<table>
<thead>
<tr>
<th>Responses from Spring Semester % (# responses)</th>
<th>Work in Cardio/pulmonary setting</th>
<th>Work in Strength and conditioning setting</th>
<th>Attend graduate school for PT</th>
<th>Attend graduate school for a degree other than PT</th>
<th>Have no plans as of today</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>15.63 % (5)</td>
<td>12.5% (4)</td>
<td>46.88% (15)</td>
<td>34.38% (11)</td>
<td>6.25% (2)</td>
<td>9.38% (3)</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>2.9% (1)</td>
<td>20.6 % (7)</td>
<td>58.8% (20)</td>
<td>29.4% (10)</td>
<td>2.9% (1)</td>
<td>8.8% (3)</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>2.9% (1)</td>
<td>5.9% (2)</td>
<td>55.9% (19)</td>
<td>20.6% (7)</td>
<td>2.9% (1)</td>
<td>23.5% (8)</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>13.8% (4)</td>
<td>24.1% (7)</td>
<td>37.9% (11)</td>
<td>31.0% (9)</td>
<td>10.3% (3)</td>
<td>20.7% (6)</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>17% (5)</td>
<td>7% (2)</td>
<td>43% (13)</td>
<td>27% (8)</td>
<td>7% (2)</td>
<td>20% (6)</td>
</tr>
<tr>
<td>Average</td>
<td>10.4%</td>
<td>14%</td>
<td>48.4%</td>
<td>28.4%</td>
<td>5.8%</td>
<td>16.4%</td>
</tr>
</tbody>
</table>

2. I found EP Classroom + Laboratory environment at Umass Lowell to be:

<table>
<thead>
<tr>
<th>Responses from Spring Semester % (# responses)</th>
<th>Superior</th>
<th>Above Average</th>
<th>Average</th>
<th>Below Average</th>
<th>Inferior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>6.25% (2)</td>
<td>40.63% (13)</td>
<td>40.63% (13)</td>
<td>6.25% (2)</td>
<td>6.25% (2)</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>5.9% (2)</td>
<td>44.1% (15)</td>
<td>47.1% (16)</td>
<td>2.9% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>5.9% (2)</td>
<td>44.1% (15)</td>
<td>47.1% (16)</td>
<td>2.9% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>3.4% (1)</td>
<td>48.3% (14)</td>
<td>48.3% (14)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>7% (2)</td>
<td>57% (17)</td>
<td>33% (10)</td>
<td>0</td>
<td>3% (1)</td>
</tr>
<tr>
<td>Average</td>
<td>5.9%</td>
<td>46.8%</td>
<td>43.2%</td>
<td>2.41</td>
<td>1.8%</td>
</tr>
</tbody>
</table>

90% of students responded “Average” or “Above Average”
3. Check off the skills that you believe the UMass Lowell EP program provided you with:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The ability to use appropriate and effective verbal, non-verbal and written communication skills</td>
<td>75% (24)</td>
<td>91.2% (31)</td>
<td>76.5% (26)</td>
<td>93.1% (27)</td>
<td>90% (27)</td>
</tr>
<tr>
<td>The ability to develop and implement an effective exercise program</td>
<td>81.25% (26)</td>
<td>67.6% (23)</td>
<td>85.3% (29)</td>
<td>82.8% (24)</td>
<td>90% (27)</td>
</tr>
<tr>
<td>The ability to demonstrate effective teaching skills with clients</td>
<td>71.88% (23)</td>
<td>64.7% (22)</td>
<td>67.6% (23)</td>
<td>89.7% (26)</td>
<td>83% (25)</td>
</tr>
<tr>
<td>The ability to recognize physiological and psychological needs of clients (example: monitor vitals, blood pressure, patient response to medication)</td>
<td>90.63% (29)</td>
<td>79.4% (27)</td>
<td>70.6% (24)</td>
<td>55.2% (16)</td>
<td>90% (27)</td>
</tr>
<tr>
<td>The ability to evaluate the client’s response to exercise and modify the exercise program accordingly</td>
<td>84.38% (27)</td>
<td>70.6% (24)</td>
<td>64.7% (22)</td>
<td>82.8% (24)</td>
<td>83% (25)</td>
</tr>
<tr>
<td>Total Respondents</td>
<td>32</td>
<td>34</td>
<td>34</td>
<td>29</td>
<td>12</td>
</tr>
</tbody>
</table>
4. Overall I rate my preparation by UMass Lowell’s EP program for practice as an Exercise Physiologist as:

<table>
<thead>
<tr>
<th>Responses % (# responses)</th>
<th>Superior</th>
<th>Above Average</th>
<th>Average</th>
<th>Below Average</th>
<th>Inferior</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spring 2014</strong></td>
<td>12.50% (4)</td>
<td>46.88% (15)</td>
<td>28.13% (9)</td>
<td>9.38% (3)</td>
<td>3.13% (1)</td>
</tr>
<tr>
<td><strong>Fall 2013</strong></td>
<td>8.8% (3)</td>
<td>44.1% (15)</td>
<td>44.1% (15)</td>
<td>2.9% (1)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Spring 2013</strong></td>
<td>5.9% (2)</td>
<td>41.2% (14)</td>
<td>50.0% (17)</td>
<td>2.9% (1)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Fall 2012</strong></td>
<td>3.4% (1)</td>
<td>55.2% (16)</td>
<td>31.0% (9)</td>
<td>6.9% (2)</td>
<td>3.42% (1)</td>
</tr>
<tr>
<td><strong>Spring 2012</strong></td>
<td>13% (4)</td>
<td>60% (18)</td>
<td>20% (6)</td>
<td>7% (2)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>8.7%</td>
<td>49.4%</td>
<td>34.6%</td>
<td>5.8%</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

84% of students responded "Average" or "Above Average"

5. The faculty assisted me in the learning process (examples: were responsive to questions, provided opportunities to meet, provided guidance, etc)

<table>
<thead>
<tr>
<th>Responses % (# responses)</th>
<th>To a very large extent</th>
<th>To a large extent</th>
<th>Somewhat</th>
<th>To a small extent</th>
<th>To a very small extent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spring 2014</strong></td>
<td>37.50% (12)</td>
<td>34.38% (11)</td>
<td>21.88% (7)</td>
<td>3.13% (1)</td>
<td>3.13% (1)</td>
</tr>
<tr>
<td><strong>Fall 2013</strong></td>
<td>29.4% (10)</td>
<td>58.8% (20)</td>
<td>8.8% (3)</td>
<td>2.9% (1)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Spring 2013</strong></td>
<td>23.5% (8)</td>
<td>47.1% (16)</td>
<td>26.5% (9)</td>
<td>2.9% (1)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Fall 2012</strong></td>
<td>24.1% (7)</td>
<td>44.8% (13)</td>
<td>17.2% (5)</td>
<td>13.8% (4)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Spring 2012</strong></td>
<td>30% (9)</td>
<td>47% (14)</td>
<td>20% (6)</td>
<td>3% (1)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>28.9%</td>
<td>46.4%</td>
<td>18.9%</td>
<td>5.1%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

75.3% responded to a “to a very large extent” or “to a large extent”
6. Upon Completion of the Exercise Physiology program, I believe

I. I have developed the ability to understand the anatomical and biomechanical bases of human development

<table>
<thead>
<tr>
<th>Responses % (# responses)</th>
<th>To a very large extent</th>
<th>To a large extent</th>
<th>Somewhat</th>
<th>To a small extent</th>
<th>To a very small extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>18.75% (6)</td>
<td>59.38% (19)</td>
<td>18.75% (6)</td>
<td>3.13% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>8.8% (3)</td>
<td>70.6% (24)</td>
<td>20.6% (7)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>11.8% (4)</td>
<td>70.6% (24)</td>
<td>17.6% (6)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>10.3% (3)</td>
<td>65.5% (19)</td>
<td>20.7% (6)</td>
<td>3.4% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>13% (4)</td>
<td>77% (23)</td>
<td>7% (2)</td>
<td>3% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Average</td>
<td>12.5%</td>
<td>68.6%</td>
<td>17%</td>
<td>1.9%</td>
<td>0</td>
</tr>
</tbody>
</table>

81.1% of students responded “to a large extent” or “to a very large extent”

II. I have developed the ability to understand the physiological and biophysical bases of human movement.

<table>
<thead>
<tr>
<th>Responses % (# responses)</th>
<th>To a very large extent</th>
<th>To a large extent</th>
<th>Somewhat</th>
<th>To a small extent</th>
<th>To a very small extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>18.75% (6)</td>
<td>53.13% (17)</td>
<td>18.75% (6)</td>
<td>6.25% (2)</td>
<td>3.13% (1)</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>17.6% (6)</td>
<td>61.8% (21)</td>
<td>20.6% (7)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>11.8% (4)</td>
<td>70.6% (24)</td>
<td>14.7% (5)</td>
<td>2.9% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>17.2% (5)</td>
<td>58.6% (17)</td>
<td>17.2% (5)</td>
<td>6.9% (2)</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>10% (3)</td>
<td>77% (23)</td>
<td>13% (4)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Average</td>
<td>15.1%</td>
<td>64.2%</td>
<td>16.9%</td>
<td>3.2%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

79.3% of students responded “to a large extent” or “to a very large extent”
III. I have developed the ability to determine the ability to determine and justify the best set of examination procedures, evaluate the results of the examination to develop an exercise prescription, which maximizes compliance, motivation and prevents injury and illness.

<table>
<thead>
<tr>
<th>Responses % (# responses)</th>
<th>To a very large extent</th>
<th>To a large extent</th>
<th>Somewhat</th>
<th>To a small extent</th>
<th>To a very small extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>21.88% (7)</td>
<td>53.13% (17)</td>
<td>18.75% (6)</td>
<td>3.13% (1)</td>
<td>3.13% (1)</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>17.6% (6)</td>
<td>61.8% (21)</td>
<td>20.6% (7)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>11.8% (4)</td>
<td>50.0% (17)</td>
<td>38.2% (13)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>13.8% (4)</td>
<td>69.0% (20)</td>
<td>13.8% (4)</td>
<td>3.4% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>23% (7)</td>
<td>47% (14)</td>
<td>27% (8)</td>
<td>3% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Average</td>
<td>17.6%</td>
<td>56.2%</td>
<td>23.7%</td>
<td>1.9%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

73.8% of students responded “to a large extent” or “to a very large extent”

IV. I have developed the ability to evaluate professional literature in Kinesiology and Exercise Physiology.

<table>
<thead>
<tr>
<th>Responses % (# responses)</th>
<th>To a very large extent</th>
<th>To a large extent</th>
<th>Somewhat</th>
<th>To a small extent</th>
<th>To a very small extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>28.13% (9)</td>
<td>53.13% (17)</td>
<td>12.50% (4)</td>
<td>3.13% (1)</td>
<td>3.13% (1)</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>14.7% (5)</td>
<td>44.1% (15)</td>
<td>41.2% (14)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>11.8% (4)</td>
<td>61.8% (21)</td>
<td>23.5% (8)</td>
<td>2.9% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>13.8% (4)</td>
<td>51.7% (15)</td>
<td>24.1% (7)</td>
<td>6.9% (2)</td>
<td>3.4% (1)</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>20% (6)</td>
<td>53% (16)</td>
<td>27% (8)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Average</td>
<td>17.7%</td>
<td>52.7%</td>
<td>25.7%</td>
<td>2.6%</td>
<td>3.2%</td>
</tr>
</tbody>
</table>

70.4% of students responded “to a large extent” or “to a very large extent”
V. I developed the ability to apply knowledge in Kinesiology and Exercise Physiology in a practicum setting.

<table>
<thead>
<tr>
<th>Responses % (# responses)</th>
<th>To a very large extent</th>
<th>To a large extent</th>
<th>Somewhat</th>
<th>To a small extent</th>
<th>To a very small extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>34.38% (11)</td>
<td>40.63% (13)</td>
<td>18.75% (6)</td>
<td>3.13% (1)</td>
<td>3.13% (1)</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>20.6% (7)</td>
<td>58.8% (20)</td>
<td>17.6% (6)</td>
<td>2.9% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>20.6% (7)</td>
<td>58.8% (20)</td>
<td>17.6% (6)</td>
<td>2.9% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>20.7% (6)</td>
<td>51.7% (15)</td>
<td>24.1% (7)</td>
<td>0</td>
<td>3.4% (1)</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>30% (9)</td>
<td>60% (18)</td>
<td>10% (3)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Average</td>
<td>25.3%</td>
<td>54%</td>
<td>17.6%</td>
<td>1.8%</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

79.3% of students responded “to a large extent” or “to a very large extent”

VI. I have developed the ability to implement a self-directed plan for professional development and lifelong learning which includes self-assessment, self-correction and self-direction.

<table>
<thead>
<tr>
<th>Responses % (# responses)</th>
<th>To a very large extent</th>
<th>To a large extent</th>
<th>Somewhat</th>
<th>To a small extent</th>
<th>To a very small extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>28.13% (9)</td>
<td>56.25% (18)</td>
<td>9.38% (3)</td>
<td>0</td>
<td>6.25% (2)</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>14.7% (5)</td>
<td>64.7% (22)</td>
<td>20.6% (7)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>11.8% (4)</td>
<td>47.1% (16)</td>
<td>41.2% (14)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>27.6% (8)</td>
<td>41.4% (12)</td>
<td>20.7% (6)</td>
<td>3.4% (1)</td>
<td>6.9% (2)</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>20% (6)</td>
<td>53% (13)</td>
<td>27% (8)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Average</td>
<td>20.4%</td>
<td>52.5%</td>
<td>23.8%</td>
<td>0.7%</td>
<td>2.63%</td>
</tr>
</tbody>
</table>

72.9% of students responded “to a large extent” or “to a very large extent”
VII. I have developed the ability to demonstrate professional behavior during interactions with others.

<table>
<thead>
<tr>
<th>Responses % (# responses)</th>
<th>To a very large extent</th>
<th>To a large extent</th>
<th>Somewhat</th>
<th>To a small extent</th>
<th>To a very small extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>59.38% (19)</td>
<td>21.88% (7)</td>
<td>15.63% (5)</td>
<td>0</td>
<td>3.13% (1)</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>47.1% (16)</td>
<td>44.1% (15)</td>
<td>8.8% (3)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>44.1% (15)</td>
<td>50.0% (17)</td>
<td>5.9% (2)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>62.1% (18)</td>
<td>31.0% (9)</td>
<td>6.9% (2)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>57% (17)</td>
<td>37% (11)</td>
<td>3% (1)</td>
<td>0</td>
<td>3% (1)</td>
</tr>
<tr>
<td>Average</td>
<td>53.9%</td>
<td>36.8%</td>
<td>8.0%</td>
<td>0</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

90.7% of students responded “to a large extent” or “to a very large extent”

VIII. I have developed the ability to communicate effectively in ways that are congruent with situational needs including appropriate body language, written communication, active listening skills and questioning.

<table>
<thead>
<tr>
<th>Responses % (# responses)</th>
<th>To a very large extent</th>
<th>To a large extent</th>
<th>Somewhat</th>
<th>To a small extent</th>
<th>To a very small extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring 2014</td>
<td>50.00% (16)</td>
<td>34.38% (11)</td>
<td>12.50% (4)</td>
<td>0</td>
<td>3.13% (1)</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>26.5% (9)</td>
<td>61.8% (21)</td>
<td>11.8% (4)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2013</td>
<td>29.4% (10)</td>
<td>61.8% (21)</td>
<td>8.8% (3)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fall 2012</td>
<td>41.4% (12)</td>
<td>48.3% (14)</td>
<td>10.3% (3)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Spring 2012</td>
<td>40% (12)</td>
<td>50% (15)</td>
<td>3% (1)</td>
<td>7% (2)</td>
<td>0</td>
</tr>
<tr>
<td>Average</td>
<td>37.5</td>
<td>51.3%</td>
<td>9.3%</td>
<td>1.4%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

88.8% of students responded “to a large extent” or “to a very large extent”
The following survey question was chosen to sample program assessment. Variations in the graphs below are due to changes in the customized survey tool utilized after the Fall of 2012 (from Zoomerang to Survey Monkey) and updates in the tools themselves. Results from the survey question that stated “Please check off each of the courses that you feel require strengthening in the UMass Lowell EP program” coincide with these results and were not presented due to redundancy. Positive and negative feedback are summarized following each survey.

Strengths of the EP Program Spring 2014
### Answer Choices

<table>
<thead>
<tr>
<th>Courses</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to EP</td>
<td>12.50%</td>
</tr>
<tr>
<td>Exercise Physiology</td>
<td>81.25%</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>62.50%</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>56.25%</td>
</tr>
<tr>
<td>EP Junior Seminar</td>
<td>6.25%</td>
</tr>
<tr>
<td>Clinical Practicum</td>
<td>71.88%</td>
</tr>
<tr>
<td>Research Methods in Exercise Physiology</td>
<td>18.75%</td>
</tr>
<tr>
<td>Senior Seminar</td>
<td>34.38%</td>
</tr>
<tr>
<td>Exercise Prescription &amp; Programming</td>
<td>87.50%</td>
</tr>
<tr>
<td>Advanced Study in EP</td>
<td>34.38%</td>
</tr>
<tr>
<td>None</td>
<td>3.13%</td>
</tr>
</tbody>
</table>

Total respondents: 32

### Highest rated (in descending order):
- Exercise prescription
- Exercise physiology
- Practicum
- Kinesiology
- Pharmacology

### Courses not identified as strengths (<30%):
- Junior Seminar
- Intro to Exercise physiology
- Research methods

### Subjective Comment Summary:

Positive student comments focused on:
- pertinence and application to practice
- professor’s knowledge of subject and class interaction
- Intellectually stimulating and promoted learning new material

Negative feedback focused on:
- low intellectual stimulation
- disorganization of course material
- lack of depth of material covered (Too many broad over-views)
- low value of information presented in Junior Seminar, Intro to EP
## Strengths of the EP Program Spring 2013

### 4. Please check off each of the courses that you feel are the strengths of the UMass Lowell EP program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to EP</td>
<td>17.6%</td>
<td>6</td>
</tr>
<tr>
<td>Exercise Physiology</td>
<td>88.2%</td>
<td>30</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>76.5%</td>
<td>26</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>23.5%</td>
<td>8</td>
</tr>
<tr>
<td>EP Junior Seminar</td>
<td>17.6%</td>
<td>6</td>
</tr>
<tr>
<td>Clinical Practicum</td>
<td>88.2%</td>
<td>30</td>
</tr>
<tr>
<td>Research Methods in Exercise Physiology</td>
<td>8.8%</td>
<td>3</td>
</tr>
<tr>
<td>Senior Seminar</td>
<td>50.0%</td>
<td>17</td>
</tr>
<tr>
<td><strong>Exercise Prescription &amp; Programming</strong></td>
<td><strong>91.2%</strong></td>
<td><strong>31</strong></td>
</tr>
<tr>
<td>Advanced Study in EP</td>
<td>20.6%</td>
<td>7</td>
</tr>
<tr>
<td>None</td>
<td>0.0%</td>
<td>0</td>
</tr>
</tbody>
</table>

**Highest rated (in descending order):**
- Exercise prescription
- EP, Practicum (both 88.2%)
- Kinesiology

**Courses not identified as strengths (<30%):**
- Research methods in EP
- Intro to Exercise physiology, EP Junior Seminar (both 17.6%)
- Pharmacology
- Advanced Study
Subjective Comment Summary:
Positive student comments focused on:
- pertinence and application to practice
- professor’s knowledge of subject and class interaction
- intellectually stimulating and promoted learning new material

Negative feedback focused on:
- low intellectual stimulation; uninteresting
- redundancy of material
- disorganization of course material
- low value of the information presented in low strength courses

Strengths of the EP Program Fall 2013

4. Please check off each of the courses that you feel are the strengths of the UMass Lowell EP program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to EP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise Physiology</td>
<td>20.6%</td>
<td>7</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>58.8%</td>
<td>20</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>64.7%</td>
<td>22</td>
</tr>
<tr>
<td>EP Junior Seminar</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Clinical Practicum</td>
<td>70.6%</td>
<td>24</td>
</tr>
<tr>
<td>Research Methods in Exercise Physiology</td>
<td>5.9%</td>
<td>2</td>
</tr>
<tr>
<td>Senior Seminar</td>
<td>52.9%</td>
<td>18</td>
</tr>
<tr>
<td>Exercise Prescription &amp; Programming</td>
<td>76.5%</td>
<td>26</td>
</tr>
<tr>
<td>Advanced Study in EP</td>
<td>8.8%</td>
<td>3</td>
</tr>
<tr>
<td>None</td>
<td>0.0%</td>
<td>0</td>
</tr>
</tbody>
</table>
Highest rated (in descending order):
Exercise Physiology
Exercise prescription
Practicum
Pharmacology

Courses not identified as strengths (<30%):
Advanced study
Research methods
Junior seminar

Subjective Comment Summary:
Positive student comments focused on:

- Knowledge and skills of instructors
- Pertinence and application to practice / work setting

Negative feedback focused on:

- Redundancy of material
- Disorganization of course material
Strengths of the EP Program Spring 2012

3. Please check off each of the courses that you feel are the strengths of the UMass Lowell EP program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Frequency</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to EP</td>
<td>12</td>
<td>40%</td>
</tr>
<tr>
<td>Exercise Physiology</td>
<td>26</td>
<td>87%</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>26</td>
<td>87%</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>25</td>
<td>83%</td>
</tr>
<tr>
<td>EP Junior Seminar</td>
<td>2</td>
<td>7%</td>
</tr>
<tr>
<td>Clinical Practicum</td>
<td>22</td>
<td>73%</td>
</tr>
<tr>
<td>Research Methods in Exercise Physiology</td>
<td>2</td>
<td>7%</td>
</tr>
<tr>
<td>Senior Seminar</td>
<td>2</td>
<td>7%</td>
</tr>
<tr>
<td>Exercise Prescription &amp; Programming</td>
<td>28</td>
<td>93%</td>
</tr>
<tr>
<td>Advanced Study in EP</td>
<td>16</td>
<td>53%</td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

21 Responses

Highest rated (in descending order):
Exercise prescription
Exercise physiology, Kinesiology (both 87%)
Pharmacology
Practicum

Courses not identified as strengths (<30%):
Junior Seminar, Research methods in EP, Senior Seminar (all 7%)

Subjective Comment Summary:
Positive student comments focused on:
- pertinence and application to practice and real life
- professor’s knowledge of subject and class interaction
- Intellectually stimulating and promoted learning new material
Negative feedback focused on:
- low intellectual stimulation; uninteresting
- redundancy of material
- disorganization of course material
- low value of the information presented in low strength courses

Strengths of the EP Program Fall 2012

4. Please check off each of the courses that you feel are the strengths of the UMass Lowell EP program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro to EP</td>
<td>34.5%</td>
<td>10</td>
</tr>
<tr>
<td>Exercise Physiology</td>
<td>75.9%</td>
<td>22</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>62.1%</td>
<td>18</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>37.9%</td>
<td>11</td>
</tr>
<tr>
<td>EP Junior Seminar</td>
<td>34.5%</td>
<td>10</td>
</tr>
<tr>
<td>Clinical Practicum</td>
<td>96.6%</td>
<td>28</td>
</tr>
<tr>
<td>Research Methods in Exercise Physiology</td>
<td>24.1%</td>
<td>7</td>
</tr>
<tr>
<td>Senior Seminar</td>
<td>82.8%</td>
<td>24</td>
</tr>
<tr>
<td>Exercise Prescription &amp; Programming</td>
<td>93.1%</td>
<td>27</td>
</tr>
<tr>
<td>Advanced Study in EP</td>
<td>31.0%</td>
<td>9</td>
</tr>
<tr>
<td>None</td>
<td>0.0%</td>
<td>0</td>
</tr>
</tbody>
</table>
Highest rated (in descending order):
Practicum
Exercise prescription
Senior seminar
Exercise physiology
Kinesiology

Courses not identified as strengths (<30%):
Research methods

Subjective Comment Summary:
Positive student comments focused on:
  • pertinence and application to practice and real life

Negative feedback focused on:
  • disorganization of course material
  • low intellectual stimulation; uninteresting
EP Survey Spring 2014 Senior Seminar Students

Edit Survey

To change the look of your survey, select a theme below.

Boxes   Edit Theme   Create Custom Theme

TITLE & LOGO   Edit Title   + Add Logo

EP Survey Spring 2014 Senior Seminar Students

+ Add Page

PAGE 1   Edit Page Options   Move   Copy   Delete

Congratulations
Congratulations on your soon to be completion of the Exercise Physiology Program at the University of Massachusetts Lowell. As soon to be graduates of the program, your input is extremely important to us. We encourage you to be as thorough and honest in your responses as possible.

+ Add Question   ▼

+ Add Page

PAGE 2   Edit Page Options   Move   Copy   Delete

+ Add Question   ▼

Q1   Edit Question   ▼   Add Question Logic   Move   Copy   Delete

* 1. What are your plans following graduation from the UMass Lowell EP program?

   Work in a cardio/pulmonary setting
   Work in a strength & conditioning setting
   Attend graduate school for physical therapy
   Attend graduate school for a degree other than physical therapy
   Have no plans as of today
Q2  Edit Question  ▼  Move  Copy  Delete

2. If you answered "attend graduate school for a degree other than physical therapy", what degree are you planning to pursue and in what field?

Q3  Edit Question  ▼  Add Question Logic  Move  Copy  Delete

* 3. I found the EP classroom and laboratory environment at UMass Lowell to be:

Superior  Above Average  Average  Below Average  Inferior

Q4  Edit Question  ▼  Add Question Logic  Move  Copy  Delete

* 4. Please check off each of the courses that you feel are the strengths of the UMass Lowell EP program.

Intro to EP
Exercise Physiology
Kinesiology
Pharmacology
EP Junior Seminar
Clinical Practicum
Research Methods in Exercise Physiology
Senior Seminar
Exercise Prescription & Programming
APPENDIX G

Advanced Study in EP
None
Please explain why you think these courses are the strengths of the program:

+ Add Question ▼ Split Page Here

Q5 Edit Question ▼ Add Question Logic Move Copy Delete

* 5. Please check off each of the courses that you feel require strengthening in the UMass Lowell EP program.

- Intro to EP
- Exercise Physiology
- Kinesiology
- Pharmacology
- EP Junior Seminar
- Clinical Practicum
- Research Methods in Exercise Physiology
- Senior Seminar
- Exercise Prescription & Programming
- Advanced Study in EP
- None

Please explain why the courses require strengthening:

+ Add Question ▼ Split Page Here

Q6 Edit Question ▼ Move Copy Delete

* 6. What non-EP courses did you find contributed to your learning (examples: Nutrition, Community Health, etc)?
Q7  Edit Question ▼ Move Copy Delete

* 7. What non-EP courses did you find were not helpful in contributing to your learning.

Q8  Edit Question ▼ Add Question Logic Move Copy Delete

* 8. Please check off the skills below that you believe the UMass Lowell EP program provided you with.

- The ability to use appropriate and effective verbal, non-verbal and written communication skills
- The ability to develop and implement an effective exercise program
- The ability to demonstrate effective teaching skills with clients
- The ability to recognize physiological and psychological needs of clients (example: monitor vitals, blood pressure, patient response to medication)
- The ability to evaluate the client's response to exercise and modify the exercise program accordingly

Please explain

Q9  Edit Question ▼ Add Question Logic Move Copy Delete

* 9. Overall I rate my preparation by UMass Lowell's EP program for practice as an Exercise Physiologist as:

Superior  Above average  Average  Below average  Inferior

+ Add Question ▼ Split Page Here
APPENDIX G

Q10  Edit Question  ▼  Add Question Logic  Move  Copy  Delete

* 10. Upon completion of the Exercise Physiology program, I believe I have developed the ability to understand the anatomical and biomechanical bases of human development.

To a very large extent  To a large extent  Somewhat  To a small extent  To a very small extent

+ Add Question  ▼  Split Page Here

Q11  Edit Question  ▼  Add Question Logic  Move  Copy  Delete

* 11. Upon completion of the Exercise Physiology program, I believe I have developed the ability to understand the physiological and biophysical bases of human movement.

To a very large extent  To a large extent  Somewhat  To a small extent  To a very small extent

+ Add Question  ▼  Split Page Here

Q12  Edit Question  ▼  Add Question Logic  Move  Copy  Delete

* 12. Upon completion of the Exercise Physiology program, I believe I have developed the ability to determine and justify the best set of examination procedures, evaluate the results of the examination to develop an exercise prescription, which maximizes compliance, motivation, and prevents injury and illness.

To a very large extent  To a large extent  Somewhat  To a small extent  To a very small extent

+ Add Question  ▼  Split Page Here

Q13  Edit Question  ▼  Add Question Logic  Move  Copy  Delete

* 13. Upon completion of the Exercise Physiology program, I believe I have developed the ability to evaluate professional literature in Kinesiology and Exercise Physiology.

To a very large extent  To a large extent  Somewhat  To a small extent  To a very small extent
Q14. Upon completion of the Exercise Physiology program, I believe I developed the ability to apply knowledge in Kinesiology and Exercise Physiology in a practicum setting.

- To a very large extent
- To a large extent
- Somewhat
- To a small extent
- To a very small extent

Q15. Upon completion of the Exercise Physiology program, I believe I have developed the ability to implement a self-directed plan for professional development and lifelong learning which includes self-assessment, self-correction, and self-direction.

- To a very large extent
- To a large extent
- Somewhat
- To a small extent
- To a very small extent

Q16. Upon completion of the Exercise Physiology program, I believe I have developed the ability to demonstrate professional behavior during interactions with others.

- To a very large extent
- To a large extent
- Somewhat
- To a small extent
- To a very small extent
Q17  Edit Question  ▼  Add Question Logic  Move  Copy  Delete

* 17. Upon completion of the Exercise Physiology program, I believe I have developed the ability to communicate effectively in ways that are congruent with situational needs including appropriate body language, written communication, active listening skills and questioning.

To a very large extent  To a large extent  Somewhat  To a small extent  To a very small extent

Q18  Edit Question  ▼  Add Question Logic  Move  Copy  Delete

* 18. The faculty assisted me in the learning process (examples: were responsive to questions, provided opportunities to meet, provided guidance, etc)

To a very large extent  To a large extent  Somewhat  To a small extent  To a very small extent

Q19  Edit Question  ▼  Add Question Logic  Move  Copy  Delete

* 19. My assigned faculty advisor provided assistance to make informed decisions about my academic career.

To a very large extent  To a large extent  Somewhat  To a small extent  To a very small extent

Q20  Edit Question  ▼  Move  Copy  Delete

* 20. Describe how well your expectations of the UMass Lowell EP program were met?
**APPENDIX G**

**Q21**   Edit Question ▼ Move Copy Delete

* 21. What strategies would you suggest for improvements to the UMass Lowell EP program?

**Q22**   Edit Question ▼ Add Question Logic Move Copy Delete

* 22. Please indicate which of the items below you see yourself participating in as a graduate and alum of the UMass Lowell EP program

- Being a mentor to undergraduate students
- Being a clinical instructor
- Being a guest lecturer
- Being responsive to financial requests on behalf of the program and university
- Being an organizer of alumni events
- Other

Please explain other ways you would like to participate after graduation.

**Q23**   Edit Question ▼ Add Question Logic Move Copy Delete

* 23. Please indicate below as an alum in the future how you see yourself communicating with the UMass Lowell EP program

- Facebook
- Email
- List serve
- Mail
- Other

Please explain what other types of communication might be helpful.
Appendix H: Lab Equipment, Weed Hall
## Laboratory Equipment Resources: Weed Hall

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Model/Brand</th>
<th>Number of Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle ergometer</td>
<td>Monark Ergomedic 828E</td>
<td>1</td>
</tr>
<tr>
<td>Treadmill</td>
<td>TrackMaster</td>
<td>1</td>
</tr>
<tr>
<td>Skinfold Caliper</td>
<td>Jamar Lange</td>
<td>1</td>
</tr>
<tr>
<td>Skinfold Caliper</td>
<td>Jamar Lange</td>
<td>6</td>
</tr>
<tr>
<td>“Other” body composition assessment tools</td>
<td>Tanita Bioelectrical Impedance Scale</td>
<td>3</td>
</tr>
<tr>
<td>Tape measures, anthropometric tools</td>
<td>Bauerfeind &amp; Grafco</td>
<td>4</td>
</tr>
<tr>
<td>Blood Pressure Cuffs</td>
<td>Abco 1 wrist automated BP cuff</td>
<td>10 (two are automatic)</td>
</tr>
<tr>
<td>Stethoscopes</td>
<td>Littmann</td>
<td>26</td>
</tr>
<tr>
<td>Heart Rate Monitors</td>
<td>Polar</td>
<td>8</td>
</tr>
<tr>
<td>Field tests:</td>
<td>Reebok Finder</td>
<td>4</td>
</tr>
<tr>
<td>Step Test Box</td>
<td>Flex Tester</td>
<td>1</td>
</tr>
<tr>
<td>Sit and Reach box</td>
<td>Sportline &amp; SportsTimer</td>
<td>8</td>
</tr>
<tr>
<td>Stop Watches</td>
<td>CDX Spiro 850</td>
<td>2</td>
</tr>
<tr>
<td>Pulmonary Function (spirometer)</td>
<td>Voldyne 5000</td>
<td>1</td>
</tr>
<tr>
<td>Strength Training Equipment</td>
<td>Parvo</td>
<td>1</td>
</tr>
<tr>
<td>Strength Training Equipment</td>
<td>CDX Spiro 850</td>
<td>1</td>
</tr>
<tr>
<td>ECG Simulator</td>
<td>Voldyne 5000</td>
<td>1</td>
</tr>
<tr>
<td>Electrocardiograph</td>
<td>CDX Spiro 850</td>
<td>1</td>
</tr>
</tbody>
</table>

APPENDIX H
<table>
<thead>
<tr>
<th>Equipment</th>
<th>Brand/Model</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand-held dynamometer</td>
<td>Lafayette Jamar Baseline</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sat Trak Pulse Oximeter Onmedia Biox 3740</td>
<td>1</td>
</tr>
<tr>
<td>Oximeter</td>
<td>Microfet 2</td>
<td>3</td>
</tr>
<tr>
<td>Manual Muscle Testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agility equipment</td>
<td>Cones Hurdles Ladder</td>
<td>6</td>
</tr>
<tr>
<td>Plyometric Boxes</td>
<td>First Place</td>
<td>2 x 12&quot; 2 x 18&quot;</td>
</tr>
<tr>
<td>Force Plates</td>
<td>Just Jump</td>
<td>3</td>
</tr>
<tr>
<td>Wall Mounted Vertec</td>
<td>Vertec</td>
<td>1</td>
</tr>
<tr>
<td>Scales</td>
<td>Healthometer</td>
<td>2</td>
</tr>
<tr>
<td>Stadiometer</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Escalade Lode Sport bike</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Univest short and long with weights</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Weight balls</td>
<td></td>
<td>2 x 2 lbs 2 x 2 kg 2 x 1.5 kg 2 x 2.5 kg</td>
</tr>
<tr>
<td>Functional Movement Screening Device</td>
<td>Perform Better</td>
<td>1</td>
</tr>
<tr>
<td>Metronomes</td>
<td>Variety of manufacturers</td>
<td>3</td>
</tr>
<tr>
<td>Timers</td>
<td>Gra Lab</td>
<td>5</td>
</tr>
</tbody>
</table>

Equipment in **Bold** type is recommended by CoAES for an undergraduate Exercise Science program.