Sport and Human Performance

Description

Sport and Human Performance is designed to prepare students to pursue careers in kinesiology and exercise physiology services. Upon completion, proficient students will be able to apply concepts of anatomy and physiology, physics, chemistry, bioenergetics, and kinesiology to specific exercise science contexts. Through these connections students will understand the importance that exercise, nutrition, and rehabilitation play in athletes or patients with debilitating or acute metabolic, orthopedic, neurological, psychological, and cardiovascular disorders. In addition, students have the opportunity to incorporate communication, goal setting, and information collection skills in their course work in preparation for future success in the workplace. Students will have the option to participate in a clinical internship at the end of the program.

Exercise Physiology Description

Exercise physiology is a branch of health care that studies the biological effect of exercise on the body's cells and organs. The practice of exercise physiology seeks to prevent chronic diseases or to provide health benefits to those suffering from disease. Exercise physiology treats diseases such as diabetes, cardiovascular disease and obesity.

Physical Therapy Description

Physical therapy uses techniques and exercises to restore movement in patients suffering from injuries, disease or aging. A physical therapy treatment plan uses an assessment of the patient's functional abilities to develop exercises and treatment.
that will restore maximum movement. The goal of physical therapy is to improve the quality of life through improved functional abilities and fitness.

Note: This description is included here to decrease confusion between this program of study and Therapeutic Services.

Clinical exercise physiologists offer medically-supervised exercise programs for several different chronic diseases, the most common treat patients with heart or lung diseases. Although some of these programs are separate (heart and lung diseases), many programs are combined, so it is prudent for a clinical exercise professional to have the ability to prescribe exercise for both cardiac and pulmonary patients. In addition, the number of exercise programs available to treat cancer patients is growing, so this is becoming a potential area of employment for clinical exercise professionals. While people who are overweight or mild-to-moderately obese may obtain sufficient help in fitness facilities designed for apparently healthy individuals, medically-supervised weight-loss programs are available for the severely obese. Also, more and more exercise programs for senior citizens are becoming available in settings ranging from community exercise facilities to nursing homes. While exercise programs for the elderly are not always medically supervised, working with this population still requires the knowledge of clinical conditions and medications typically required in clinical exercise settings.

Clinical exercise positions nearly always require a bachelor's degree and often require a master's. Even when a master's degree is not required for an entry-level position, it usually results in a higher salary and may be very helpful in terms of advancing to a supervisory position. In addition to the coursework mentioned above, clinical exercise professionals need a working knowledge of pathophysiology, medications, and exercise testing and prescription for chronically-diseased individuals.

For students interested in chiropractic medicine, this POS provides a strong foundation for an undergraduate pre-chiropractic degree such as Exercise Science and Kinesiology. Students seeking admission to chiropractic programs must complete specific science prerequisites, but may not have to complete a degree prior to admission. Many students seek a degree in Exercise Science or Kinesiology as their pre-chiropractic program as a way to obtain a bachelor's degree while awaiting admission.

**Job Outlook**

According to the Bureau of Labor statistics, national employment of exercise physiologists is projected to grow 11 percent from 2014 to 2024, faster than the average for all occupations. Employment data for Tennessee is unavailable at this time. Demand may rise as hospitals emphasize exercise and preventive care as part of their treatment and long-term rehabilitation from

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chronic diseases, such as cardiovascular and pulmonary diseases. Figure 1 shows Tennessee data for occupations that may support the exercise physiologist, Figure 2 shows physical therapy assistant job distribution while Figure 3 compares state and national data for physical therapy assistants.

**Figure 1.** Tennessee employment projections for clinical exercise physiology and related occupations with positive openings projected 2014-2022

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Massage Therapist</td>
<td>1630</td>
<td>2080</td>
<td>450</td>
<td>2.5%</td>
<td>$33,390</td>
</tr>
<tr>
<td>Physical Therapist</td>
<td>4,700</td>
<td>6,690</td>
<td>2,220</td>
<td>4.0%</td>
<td>$85,420</td>
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<tr>
<td>Physical Therapy Assistant</td>
<td>2,330</td>
<td>3,630</td>
<td>1,300</td>
<td>4.5%</td>
<td>$57,490</td>
</tr>
<tr>
<td>Physical Therapy Aide</td>
<td>1,180</td>
<td>1,750</td>
<td>580</td>
<td>4.1%</td>
<td>$22,940</td>
</tr>
<tr>
<td>Personal Trainer</td>
<td>4,600</td>
<td>5,310</td>
<td>710</td>
<td>1.4%</td>
<td>$34,750</td>
</tr>
</tbody>
</table>

**Figure 2.** 2014 Projected employment for Physical Therapy Assistants in Tennessee

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Figure 3. State and national trends for physical therapy assistants with positive projections 2014-24

<table>
<thead>
<tr>
<th>National</th>
<th>Employment</th>
<th>Percent Change</th>
<th>Projected Annual Job Openings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2014</td>
<td>2024</td>
<td></td>
</tr>
<tr>
<td>Personal Trainer</td>
<td>279,100</td>
<td>302,500</td>
<td>8%</td>
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</table>

<table>
<thead>
<tr>
<th>Tennessee18</th>
<th>Employment</th>
<th>Percent Change</th>
<th>Projected Annual Job Openings</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>2014</td>
<td>2024</td>
<td></td>
</tr>
<tr>
<td>Personal Trainer</td>
<td>4,600</td>
<td>5,310</td>
<td>15%</td>
</tr>
</tbody>
</table>

**Postsecondary Opportunities**

Upon completion of this POS, students will be prepared to further their training at community colleges and universities in the area of clinical exercise physiology. Figure 4 outlines the related career opportunities and the training necessary for each. While clinical exercise physiologists require a minimum of a bachelor's degree, physical therapy assistants require an associate degree, massage therapists require a certification, and physical therapy aides can be trained on the job. Also, through the Tennessee Department of Education promoted industry certification, students may become certified personal trainers. The student's portfolio can be used to add credibility to a postsecondary application and would especially helpful should a student choose to enter the workforce upon graduation from high school.

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High School Sport & Human Performance Program of Study

Physical Therapy Aide - on the job training

Industry Certification:
- Personal Trainer
- Dual credit/enrollment may be established with local postsecondary institutions in Anatomy & Physiology

Postsecondary Certificate

Massage Therapy
- Chattanooga State Community College
- Roane State Community College

Physical Therapy Assistant
- Chattanooga State Community College
- Jackson State Community College
- Roane State Community College
- Southwest Tennessee Community College
- Volunteer State Community College
- Walters State Community College

Associate Degree

Bachelor's Degree

B.S. Kinesiology
- University of Tennessee-Knoxville

Tennessee Transfer Pathway in Kinesiology
- Chattanooga State Community College
- Cleveland State Community College
- Northeast State Community College
- Pellissippi State Community College
- Roane State Community College
- University of Tennessee-Knoxville
- Walters State Community College

Advanced Degrees:
- Ph.D. Physical Therapy
  - ETSU
  - TSU
  - UT Memphis

High School Diploma

- Personal Trainer ($19,420-$45,320)
- Physical Therapy Aide ($18,240-$26,720)

Certificate

- Massage Therapist ($19,810-$42,970)

Associate Degree

- Physical Therapy Assistant ($41,410-$64,600)

Bachelor's Degree

- Exercise Physiologist ($33,580-$54,600)
- Physical Therapist ($66,360-$98,120) with PhD

Figure 4. Sport and Human Performance Postsecondary Program of Study
The Sport and Human Performance program of study was introduced in the 2015-16 SY, and the first Exercise Science courses were taught in the 2016-17 SY. Exercise Physiology POS offerings has increased each year since 2015-16 and with the aligned certification, student enrollment should continue to rise. Figure 5 shows open enrollment analysis and student enrollment for the Exercise Physiology POS. Concentrator data is unavailable at this time.

Figure 5. Open Enrollment Analysis

<table>
<thead>
<tr>
<th>SY</th>
<th>Sport and Human Performance</th>
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<tbody>
<tr>
<td>2015-16</td>
<td>13</td>
</tr>
<tr>
<td>2016-17</td>
<td>25</td>
</tr>
<tr>
<td>2017-18</td>
<td>79</td>
</tr>
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</table>

Student Enrollment

<table>
<thead>
<tr>
<th>SY</th>
<th>Health Science Education</th>
<th>Rehabilitative Careers</th>
<th>Anatomy &amp; Physiology</th>
<th>Exercise Science</th>
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<tbody>
<tr>
<td>2013-14</td>
<td>13622</td>
<td>2661</td>
<td>3914</td>
<td>0</td>
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<tr>
<td>2014-15</td>
<td>13624</td>
<td>2370</td>
<td>3782</td>
<td>0</td>
</tr>
<tr>
<td>2015-16</td>
<td>14563</td>
<td>2478</td>
<td>3990</td>
<td>177</td>
</tr>
<tr>
<td>2017-18</td>
<td>17250</td>
<td>3545</td>
<td>4338</td>
<td>192</td>
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Exercise Physiology Concentrators

<table>
<thead>
<tr>
<th>SY</th>
<th>Exercise Physiology Concentrators</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-14</td>
<td>n.d.</td>
</tr>
<tr>
<td>2015-16</td>
<td>n.d.</td>
</tr>
<tr>
<td>2016-17</td>
<td>n.d.</td>
</tr>
</tbody>
</table>

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To align the Exercise Physiology POS name with postsecondary nomenclature, it is recommended that the POS name be changed to *Sport and Human Performance*. This name specifically aligns to department names at universities across the state where students will continue their education in Exercise Physiology.

No other recommendations at this time.

<table>
<thead>
<tr>
<th>2017-18 Program of Study</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
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</thead>
<tbody>
<tr>
<td><strong>Sport and Human Performance</strong></td>
<td>Health Science Education (5998)</td>
<td>Anatomy and Physiology (3251 or 5991) -or- Rehabilitation Careers (5990)</td>
<td>Anatomy and Physiology (3251 or 5991) -or- Rehabilitation Careers (5990) <strong>Dual Enrollment</strong> Exercise Physiology (4102)</td>
<td>Exercise Science (6170) -or- Clinical Internship (5993) -or- <strong>Dual Enrollment</strong> Exercise Physiology (4102)</td>
</tr>
<tr>
<td>Industry Certification following 6170 <strong>AND</strong> 5993: Certified Personal Trainer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


