Program Outcomes Assessment

MA/MS in Phys Ed(Exercise Science)

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# Table of Contents

## General Information

## Standing Requirements
- Mission Statement ................................................................. 2
- Outcomes Library ................................................................. 2
- Curriculum Map ................................................................. 3
- Communication of Outcomes .................................................. 3

## Archive
- Archive ..................................................................................... 5

## 2009-2010 Assessment Cycle
- Assessment Plan ..................................................................... 6
- Assessment Findings .............................................................. 6

## 2010-2011 Assessment Cycle
- Assessment Plan ..................................................................... 7
- Assessment Findings .............................................................. 7

## 2011-2012 Assessment Cycle
- Assessment Plan ..................................................................... 9
- Assessment Findings .............................................................. 10
- Action Plan ............................................................................. 12
- Status Report ........................................................................ 12

## 2012-2013 Assessment Cycle
- Assessment Plan ..................................................................... 13
- Assessment Findings .............................................................. 14
- Action Plan ............................................................................. 16
- Status Report ........................................................................ 17

## 2013-2014 Assessment Cycle
- Assessment Plan ..................................................................... 19
- Assessment Findings .............................................................. 20
- Action Plan ............................................................................. 22
- Status Report ........................................................................ 24
<table>
<thead>
<tr>
<th>Assessment Cycle</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2014-2015</strong></td>
<td></td>
</tr>
<tr>
<td>Assessment Plan</td>
<td>28</td>
</tr>
<tr>
<td>Assessment Findings</td>
<td>29</td>
</tr>
<tr>
<td>Action Plan</td>
<td>31</td>
</tr>
<tr>
<td>Status Report</td>
<td>31</td>
</tr>
<tr>
<td><strong>2015-2016</strong></td>
<td></td>
</tr>
<tr>
<td>Assessment Plan</td>
<td>32</td>
</tr>
<tr>
<td>Assessment Findings</td>
<td>33</td>
</tr>
<tr>
<td>Action Plan</td>
<td>34</td>
</tr>
<tr>
<td>Status Report</td>
<td>34</td>
</tr>
<tr>
<td><strong>2016-2017</strong></td>
<td></td>
</tr>
<tr>
<td>Assessment Plan</td>
<td>36</td>
</tr>
<tr>
<td>Assessment Findings</td>
<td>36</td>
</tr>
<tr>
<td><strong>2017-2018</strong></td>
<td></td>
</tr>
<tr>
<td>Assessment Plan</td>
<td>37</td>
</tr>
<tr>
<td>Assessment Findings</td>
<td>37</td>
</tr>
<tr>
<td><strong>2018-2019</strong></td>
<td></td>
</tr>
<tr>
<td>Assessment Plan</td>
<td>38</td>
</tr>
<tr>
<td>Assessment Findings</td>
<td>38</td>
</tr>
<tr>
<td><strong>2019-2020</strong></td>
<td></td>
</tr>
<tr>
<td>Assessment Plan</td>
<td>39</td>
</tr>
<tr>
<td>Assessment Findings</td>
<td>39</td>
</tr>
<tr>
<td><strong>Appendix</strong></td>
<td>40</td>
</tr>
</tbody>
</table>
General Information (Program Outcomes Assessment)
Standing Requirements

Mission Statement

The general mission of the Department of Kinesiology, Recreation and Sport is to achieve distinction in undergraduate and graduate education by promoting excellence in teaching, advancing and disseminating knowledge in research creative activities, and providing leadership for institutional, professional, and public service. The Exercise Science specialization includes interdisciplinary course work in research methods, exercise physiology, biomechanics, strength and conditioning, sport psychology, healthy lifestyle choices, fitness assessment and individual prescription. These content areas are utilized in an integrated culminating experience found in a research experience or an applied internship in the fitness/wellness industry, exercise sciences, strength coaching, or allied health professions.

Outcomes Library

MA/MS in Phys Ed(Exercise Science) Outcome Set

<table>
<thead>
<tr>
<th>Learning Objective 1 Research</th>
<th>Implement knowledge application of research in sport and exercise science.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome</strong></td>
<td><strong>Mapping</strong></td>
</tr>
<tr>
<td>Outcome 1.1</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Apply knowledge of basic research design.</td>
<td></td>
</tr>
<tr>
<td>Outcome 1.2</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Articulate understanding of research in the health/fitness setting through writing.</td>
<td></td>
</tr>
<tr>
<td>Outcome 1.3</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Demonstrate understanding of statistical principles through data collection, analysis, and interpretation.</td>
<td></td>
</tr>
<tr>
<td>6 Demonstrate effective motion analysis techniques</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Marked obsolete by Alfred Finch on 01/27/2012 7:49:21 pm CST</td>
<td></td>
</tr>
</tbody>
</table>

Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement skills for effective movement patterns.

<table>
<thead>
<tr>
<th>Learning Objective 2 Sport Psychology</th>
<th>Integrate principles within sport and exercise psychology to enhance the sport and exercise experience.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome</strong></td>
<td><strong>Mapping</strong></td>
</tr>
<tr>
<td>Outcome 2.1</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Apply sport and exercise psychology theory and principles through writing.</td>
<td></td>
</tr>
<tr>
<td>Outcome 2.2</td>
<td>No Mapping</td>
</tr>
</tbody>
</table>


Identify appropriate motivational techniques in a health/fitness setting.

<table>
<thead>
<tr>
<th>Learning Objective 3 Physical Conditioning</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply advanced physical conditioning theory, principles and testing modalities in sport and exercise settings.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome 3.1 Explain physiological responses to aerobic exercise testing and training.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Outcome 3.2 Explain physiological responses to resistance exercise testing and training.</td>
<td>No Mapping</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning Objective 4 - Effective Motion Analysis Techniques</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will demonstrate proper quantitative and qualitative motion analysis techniques.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome 4.1 Quantitative &amp; Qualitative Motion Analysis Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement skills for effective movement patterns</td>
<td>No Mapping</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning Objective 5 Assessment and Prescription</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescribe appropriate exercises based on individual assessments.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome 4.1 Demonstrate and analyze use of appropriate pre-screening techniques.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Outcome 4.2 Demonstrate the ability to prescribe exercise based on specific health data.</td>
<td>No Mapping</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Learning Objective 6 - Lifestyle Choices</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrate ability to effectively educate individuals regarding healthy choices over their lifespan.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome 5.1 Exhibit tools for successful communication of lifestyle choices.</td>
<td>No Mapping</td>
</tr>
<tr>
<td>Outcome 5.2 Understand how lifestyle choices made in youth and throughout the lifespan directly impact quality of life.</td>
<td>No Mapping</td>
</tr>
</tbody>
</table>

Curriculum Map

<table>
<thead>
<tr>
<th>Active Curriculum Maps</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>© Graduate Exercise Sci Map (See appendix)</td>
<td></td>
</tr>
<tr>
<td>Alignment Set: MA/MS in Phys Ed(Exercise Science) Outcome Set</td>
<td></td>
</tr>
<tr>
<td>Created: 05/27/2010 2:56:12 pm CST</td>
<td></td>
</tr>
<tr>
<td>Last Modified: 05/09/2013 4:52:06 pm CST</td>
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</table>
Communication of Outcomes

The program outcomes were posted on the department web site. PE 685 Learning outcome is provided in sample syllabus.

File Attachments:

1. PE685 Bio F2011 Outline Griffith.doc (See appendix)
Archive (This area is to be used for archiving pre-TaskStream assessment data and for current documents.)
# 2009-2010 Assessment Cycle

## Assessment Plan

<table>
<thead>
<tr>
<th>Outcomes and Measures</th>
</tr>
</thead>
</table>

## Assessment Findings

<table>
<thead>
<tr>
<th>Finding per Measure</th>
</tr>
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<table>
<thead>
<tr>
<th>Overall Recommendations</th>
</tr>
</thead>
</table>

*No text specified*

## Overall Reflection

*No text specified*
Assessment Plan

Outcomes and Measures

MA/MS in Phys Ed(Exercise Science) Outcome Set

Learning Objective 3 Physical Conditioning
Apply advanced physical conditioning theory, principles and testing modalities in sport and exercise settings.

Outcome 3.1
Explain physiological responses to aerobic exercise testing and training.

Measure: PE 675 Final Exam question #6
Direct - Exam

Details/Description: Student will explain the benefits and contraindications of hypoxic training.
Target: 85% of students will score 7/10 points.
Implementation Plan (timeline): Spring 2011 and every three years thereafter.
Responsible Individual(s): Dr. Thomas Nesser

Outcome 3.2
Explain physiological responses to resistance exercise testing and training.

Measure: PE 675 Final Exam question #2, #3, & #4
Direct - Exam

Details/Description: Student will explain the relationship between joint ROM and functional movement, spine stability and force transfer, and the elastic properties of the connective tissue.
Target: 85% of students will score 7/10 points for each of the three questions.
Implementation Plan (timeline): 2011 and every three years thereafter.
Responsible Individual(s): Dr. Thomas Nesser

Assessment Findings

Finding per Measure

MA/MS in Phys Ed(Exercise Science) Outcome Set

Learning Objective 3 Physical Conditioning
Apply advanced physical conditioning theory, principles and testing modalities in sport and exercise settings.

Outcome 3.1
Explain physiological responses to aerobic exercise testing and training.

Measure: PE 675 Final Exam question #6
Direct - Exam

Details/Description: Student will explain the benefits and contraindications of hypoxic training.
Target: 85% of students will score 7/10 points.
Implementation Plan (timeline): Spring 2011 and every three years thereafter.
Responsible Individual(s): Dr. Thomas Nesser

Findings for PE 675 Final Exam question #6
Outcome 3.2
Explain physiological responses to resistance exercise testing and training.

**Measure:** PE 675 Final Exam question #2, #3, & #4
Direct - Exam

**Details/Description:** Student will explain the relationship between joint ROM and functional movement, spine stability and force transfer, and the elastic properties of the connective tissue.

**Target:** 85% of students will score 7/10 points for each of the three questions.

**Implementation Plan (timeline):** 2011 and every three years thereafter.

**Responsible Individual(s):** Dr. Thomas Nesser

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**Findings for PE 675 Final Exam question #2, #3, & #4**

No Findings Added

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**Overall Recommendations**

No text specified

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**Overall Reflection**

Graduate students in PE601 Research Methods were able to understand a variety of research methods, develop a research topic, conduct a literature review, develop appropriate research procedures for the topic, develop reasonable and appropriate experimental hypotheses, apply the appropriate statistical design, and demonstrate proper technical writing techniques evidenced in a final research proposal manuscript and an oral presentation on the topic.
### Assessment Plan

#### Outcomes and Measures

#### MA/MS in Phys Ed(Exercise Science) Outcome Set

**Learning Objective 1 Research**
Implement knowledge application of research in sport and exercise science.

<table>
<thead>
<tr>
<th>Outcome 1.2</th>
<th>Articulate understanding of research in the health/fitness setting through writing.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measure</strong>:</td>
<td>Demonstrate technical writing required in the development of a research proposal.</td>
</tr>
<tr>
<td></td>
<td>Direct - Student Artifact</td>
</tr>
<tr>
<td><strong>Details/Description</strong>:</td>
<td>Students will develop a research proposal for an individual research project which includes the problem, literature review, research methodology, and statistical analysis procedures.</td>
</tr>
<tr>
<td><strong>Target</strong>:</td>
<td>90% of students will earn 80/100 points for the development of a research proposal that is presented to class.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline)</strong>:</td>
<td>Spring semester</td>
</tr>
<tr>
<td><strong>Responsible Individual(s)</strong>:</td>
<td>Alfred Finch</td>
</tr>
</tbody>
</table>

**Learning Objective 3 Physical Conditioning**
Apply advanced physical conditioning theory, principles and testing modalities in sport and exercise settings.

<table>
<thead>
<tr>
<th>Outcome 3.1</th>
<th>Explain physiological responses to aerobic exercise testing and training.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measure</strong>:</td>
<td>PE 675 Final Exam question #6</td>
</tr>
<tr>
<td></td>
<td>Direct - Exam</td>
</tr>
<tr>
<td><strong>Details/Description</strong>:</td>
<td>Student will explain the benefits and contraindications of hypoxic training.</td>
</tr>
<tr>
<td><strong>Target</strong>:</td>
<td>85% of students will score 7/10 points.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline)</strong>:</td>
<td>Spring 2011 and every three years thereafter.</td>
</tr>
<tr>
<td><strong>Responsible Individual(s)</strong>:</td>
<td>Dr. Thomas Nesser</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcome 3.2</th>
<th>Explain physiological responses to resistance exercise testing and training.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measure</strong>:</td>
<td>PE 675 Final Exam question #2, #3, &amp; #4</td>
</tr>
<tr>
<td></td>
<td>Direct - Exam</td>
</tr>
<tr>
<td><strong>Details/Description</strong>:</td>
<td>Student will explain the relationship between joint ROM and functional movement, spine stability and force transfer, and the elastic properties of the connective tissue.</td>
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<tr>
<td><strong>Target</strong>:</td>
<td>85% of students will score 7/10 points for each of the three questions.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline)</strong>:</td>
<td>2011 and every three years thereafter.</td>
</tr>
<tr>
<td><strong>Responsible Individual(s)</strong>:</td>
<td>Dr. Thomas Nesser</td>
</tr>
</tbody>
</table>

**Learning Objective 4 - Effective Motion Analysis Techniques**
Students will demonstrate proper quantitative and qualitative motion analysis techniques.
Program Outcomes Assessment
MA/MS in Phys Ed(Exercise Science)

**Outcome 4.1**
**Quantitative & Qualitative Motion Analysis**
Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement skills for effective movement patterns.

**Measure: Effective Motion Analysis Techniques**
**Direct - Student Artifact**

**Details/Description:** Students will demonstrate proper quantitative and qualitative motion analysis in an individual research project.
**Target:** 90% of students will earn 80/100 points for a biomechanical motion analysis written project and oral presentation that includes video analysis.

**Implementation Plan (timeline):** Fall semester

**Responsible Individual(s):** Dr. Alfred Finch

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**Assessment Findings**

**Finding per Measure**

**MA/MS in Phys Ed(Exercise Science) Outcome Set**

**Learning Objective 1 Research**
Implement knowledge application of research in sport and exercise science.

**Outcome 1.2**
Articulate understanding of research in the health/fitness setting through writing.

**Measure: Demonstrate technical writing required in the development of a research proposal**
**Direct - Student Artifact**

**Details/Description:** Students will develop a research proposal for an individual research project which includes the problem, literature review, research methodology, and statistical analysis procedures.

**Target:** 90% of students will earn 80/100 points for the development of a research proposal that is presented to class.

**Implementation Plan (timeline):** Spring semester

**Responsible Individual(s):** Alfred Finch

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**Findings for Demonstrate technical writing required in the development of a research proposal**

**Summary of Findings:** PE 601 Research Methods- Students demonstrated appropriate research procedures which included the following components: Research topic development, Development of scope of the study, develop statistical hypotheses for selected variables, conduct a topical literature review, develop appropriate research methodologies to examine the research problem, variable selection, and use appropriate statistical design for the experimental procedures conducted and prepare a comprehensive bibliography using APA format and prepare and present the research proposal to a peer cohort group.

14 out of 15 (93%) of the students in PE 601 Spring 2012 Research Methods class attained a grade of 80% or higher on their research proposal and oral presentation. See included sample artifacts of proposals.

**Results:** Target Achievement: Met

**Recommendations:**

**Reflections/Notes:**

**Substantiating Evidence:**
- PE601 Research Methods Evaluation Elements (Word Document (Open XML)) (See appendix)
- Research Proposal Manuscript Student1 (Adobe Acrobat Document) (See appendix)
- Research Proposal Manuscript Student2 (Adobe Acrobat Document) (See appendix)
- Research Proposal Manuscript Student3 (Adobe Acrobat Document) (See appendix)
- Research Proposal Manuscript Student4 (Adobe Acrobat Document) (See appendix)
Learning Objective 3 Physical Conditioning
Apply advanced physical conditioning theory, principles and testing modalities in sport and exercise settings.

Outcome 3.1
Explain physiological responses to aerobic exercise testing and training.

Measure: PE 675 Final Exam question #6
Direct - Exam

Details/Description: Student will explain the benefits and contraindications of hypoxic training.
Target: 85% of students will score 7/10 points.
Implementation Plan (timeline): Spring 2011 and every three years thereafter.
Responsible Individual(s): Dr. Thomas Nesser

Findings for PE 675 Final Exam question #6

Summary of Findings: All students (100%) met the criteria.
Results: Target Achievement: Exceeded
Recommendations:

Outcome 3.2
Explain physiological responses to resistance exercise testing and training.

Measure: PE 675 Final Exam question #2, #3, & #4
Direct - Exam

Details/Description: Student will explain the relationship between joint ROM and functional movement, spine stability and force transfer, and the elastic properties of the connective tissue.
Target: 85% of students will score 7/10 points for each of the three questions.
Implementation Plan (timeline): 2011 and every three years thereafter.
Responsible Individual(s): Dr. Thomas Nesser

Findings for PE 675 Final Exam question #2, #3, & #4

No Findings Added

Learning Objective 4 - Effective Motion Analysis Techniques
Students will demonstrate proper quantitative and qualitative motion analysis techniques.

Outcome 4.1
Quantitative & Qualitative Motion Analysis
Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement skills for effective movement patterns

Measure: Effective Motion Analysis Techniques
Direct - Student Artifact

Details/Description: Students will demonstrate proper quantitative and qualitative motion analysis in an individual research project
Target: 90% of students will earn 80/100 points for a biomechanical motion analysis written project and oral presentation that includes video analysis.
Implementation Plan (timeline): Fall semester
Responsible Individual(s): Dr. Alfred Finch

Findings for Effective Motion Analysis Techniques
Summary of Findings: PE685 Biomechanics Quantitative & Qualitative Kinematic Motion Analysis
Motion Analysis Project Objective: Students demonstrated proper video motion analysis collection techniques for a self-selected sport movement. The students integrated a qualitative descriptive analysis with the numerical kinematic analysis provided by the Ariel Performance Analysis System (APAS) and Dartfish Sport Visualization software.

• 15 out of 15 students in PE685 Biomechanics of Sports attained a score of 80% or more for the biomechanical motion analysis research project. See supporting documents

Results: Target Achievement: Exceeded

Recommendations:

Reflections/Notes:

Substantiating Evidence:

- Biomechanics Project Student1 (Adobe Acrobat Document) (See appendix)
- Biomechanics Project Student2 (Adobe Acrobat Document) (See appendix)
- Biomechanics Project Student3 (Adobe Acrobat Document) (See appendix)
- Biomechanics Project Student4 (Adobe Acrobat Document) (See appendix)
- PE685 Biomechanics Project Elements (Word Document (Open XML)) (See appendix)

These Findings are associated with the following Actions:

Reduce time challenged projects that lead to only 82% of students attaining target grade of 80% on biomechanical research project.

(Action Plan; 2012-2013 Assessment Cycle)

Overall Recommendations

No text specified

Overall Reflection

No text specified

Action Plan

Status Report
# Assessment Plan

## Outcomes and Measures

### MA/MS in Phys Ed(Exercise Science) Outcome Set

#### Learning Objective 1 Research
Implement knowledge application of research in sport and exercise science.

<table>
<thead>
<tr>
<th>Outcome 1.2</th>
<th>Measure: Demonstrate technical writing required in the development of a research proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articulate understanding of research in the health/fitness setting through writing.</td>
<td>Direct - Student Artifact</td>
</tr>
</tbody>
</table>

- Details/Description: Students will develop a research proposal for an individual research project which includes the problem, literature review, research methodology, and statistical analysis procedures.
- Target: 90% of students will earn 80/100 points for the development of a research proposal that is presented to class.
- Implementation Plan (timeline): Spring semester
- Responsible Individual(s): Alfred Finch

#### Learning Objective 3 Physical Conditioning
Apply advanced physical conditioning theory, principles and testing modalities in sport and exercise settings.

<table>
<thead>
<tr>
<th>Outcome 3.1</th>
<th>Measure: PE 675 Final Exam question #6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain physiological responses to aerobic exercise testing and training.</td>
<td>Direct - Exam</td>
</tr>
</tbody>
</table>

- Details/Description: Student will explain the benefits and contraindications of hypoxic training.
- Target: 85% of students will score 7/10 points.
- Implementation Plan (timeline): Spring 2011 and every three years thereafter.
- Responsible Individual(s): Dr. Thomas Nesser

<table>
<thead>
<tr>
<th>Outcome 3.2</th>
<th>Measure: PE 684 Neuromuscular concepts of strength development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain physiological responses to resistance exercise testing and training.</td>
<td>Direct - Other</td>
</tr>
</tbody>
</table>

- Details/Description: Students will explain and demonstrate the relationship between joint ROM and functional movement, neuromuscular effects on force development, and the elastic properties of the connective tissue. Successful understanding of the concepts will be measured by 80% of the students scoring 80% on the final examination on muscular strength developments and also 80% of the students attaining an 80% on their neuromuscular laboratory project report.
- Target: 80% of students will score 80% on the neuromuscular concepts final exam and 80% of the students will attain a grade of 80% on their neuromuscular laboratory project.
- Implementation Plan (timeline): 2012 and every 2 years thereafter.
- Responsible Individual(s): Dr. Neil Fleming

#### Learning Objective 4 - Effective Motion Analysis Techniques
Outcome 4.1
Quantitative & Qualitative Motion Analysis

Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement skills for effective movement patterns.

**Measure:** Effective Motion Analysis Techniques
**Direct:** Student Artifact

**Details/Description:** Students will demonstrate proper quantitative and qualitative motion analysis in an individual research project.
**Target:** 90% of students will earn 80/100 points for a biomechanical motion analysis written project and oral presentation that includes video analysis.
**Implementation Plan (timeline):** Fall semester
**Responsible Individual(s):** Dr. Alfred Finch

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Assessment Findings

**Finding per Measure**

**MA/MS in Phys Ed(Exercise Science) Outcome Set**

**Learning Objective 1 Research**
Implement learning knowledge application of research in sport and exercise science.

**Outcome 1.2**
Articulate understanding of research in the health/fitness setting through writing.

**Measure:** Demonstrate technical writing required in the development of a research proposal
**Direct:** Student Artifact

**Details/Description:** Students will develop a research proposal for an individual research project which includes the problem, literature review, research methodology, and statistical analysis procedures.
**Target:** 90% of students will earn 80/100 points for the development of a research proposal that is presented to class.
**Implementation Plan (timeline):** Spring semester
**Responsible Individual(s):** Alfred Finch

**Findings** for Demonstrate technical writing required in the development of a research proposal

**Summary of Findings:** 100% of Exercise Science students scored 80% or higher on their research project and oral presentation.
**Results:** Target Achievement: Exceeded
**Recommendations:** Adjust the due date of the research project and presentation to a 2 week earlier date in order to prevent procrastination on the project completion and be time compressed when completing statistical workbook projects.
**Reflections/Notes:** Students tended to delay starting the research project and then they did not allow sufficient time to do a superior job on their statistical workbook projects.

**Learning Objective 3 Physical Conditioning**
Apply advanced physical conditioning theory, principles and testing modalities in sport and exercise settings.

**Outcome 3.1**
Explain physiological responses to aerobic exercise testing and

**Measure:** PE 675 Final Exam question #6
**Direct:** Exam
Details/Description: Student will explain the benefits and contraindications of hypoxic training.

Target: 85% of students will score 7/10 points.

Implementation Plan (timeline): Spring 2011 and every three years thereafter.

Responsible Individual(s): Dr. Thomas Nesser

Findings for PE 675 Final Exam question #6

Summary of Findings: 100% of the students attained a 70% on the question#6 on hypoxic training.

Results: Target Achievement: Exceeded

Recommendations:

Reflections/Notes:

Outcome 3.2

Explain physiological responses to resistance exercise testing and training.

Measure: PE 684 Neuromuscular concepts of strength development
Direct - Other

Details/Description: Students will explain and demonstrate the relationship between joint ROM and functional movement, neuromuscular effects on force development, and the elastic properties of the connective tissue. Successful understanding of the concepts will be measured by 80% of the students scoring 80% on the final examination on muscular strength developments and also 80% of the students attaining an 80% on their neuromuscular laboratory project report.

Target: 80% of students will score 80% on the neuromuscular concepts final exam and 80% of the students will attain a grade of 80% on their neuromuscular laboratory project.

Implementation Plan (timeline): 2012 and every 2 years thereafter.

Responsible Individual(s): Dr. Neil Fleming

Findings for PE 684 Neuromuscular concepts of strength development

Summary of Findings: All students attained 80% on the neuromuscular strength concepts exam and laboratory report.

Results: Target Achievement: Exceeded

Recommendations: Encourage more hands-on experience with the neuromuscular data collection

Reflections/Notes:

Learning Objective 4 - Effective Motion Analysis Techniques

Students will demonstrate proper quantitative and qualitative motion analysis techniques.

Outcome 4.1

Quantitative & Qualitative Motion Analysis

Measure: Effective Motion Analysis Techniques
Direct - Student Artifact

Details/Description: Students will demonstrate proper quantitative and qualitative motion analysis in an individual research project

Target: 90% of students will earn 80/100 points for a biomechanical motion analysis written project and oral presentation that includes video analysis.

Implementation Plan (timeline): Fall semester

Responsible Individual(s): Dr. Alfred Finch
**Findings for Effective Motion Analysis Techniques**

**Summary of Findings:** 82% of the students attained a 80% on their biomechanical motion analysis written project.

**Results:** Target Achievement: Not Met

**Recommendations:** The introduction of the filming techniques of the project will be taught 2 weeks earlier in the course schedule in the future.

**Reflections/Notes:** Lower grades than expected were attained in the biomechanics' project because 3 students had intermittent attendance due to coaching responsibilities and then they procrastinated until the last week to film their project and they underestimated the necessary time to complete a quality project. One student did not submit a final project because he did not get around to it.

**These Findings are associated with the following Actions:**

Reduce time challenged projects that lead to only 82% of students attaining target grade of 80% on biomechanical research project.

(Submitted Plan; 2012-2013 Assessment Cycle)

**Overall Recommendations**

Schedule the biomechanical project data collection to an earlier time in order to account for students under-estimation of the learning curve for reduction process and hold firm on the target due dates to encourage better time management on the project completion.

**Overall Reflection**

No text specified

**Action Plan**

**Actions**

MA/MS in Phys Ed(Exercise Science) Outcome Set

**Learning Objective 4 - Effective Motion Analysis Techniques**

Students will demonstrate proper quantitative and qualitative motion analysis techniques.

**Outcome 4.1 Quantitative & Qualitative Motion Analysis**

Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement skills for effective movement patterns.

**Action:** Reduce time challenged projects that lead to only 82% of students attaining target grade of 80% on biomechanical research project.

**This Action is associated with the following Findings**

**Findings for Effective Motion Analysis Techniques**

(Submitted Plan and Assessment Findings; 2011-2012 Assessment Cycle)

**Summary of Findings:** PE685 Biomechanics Quantitative & Qualitative Kinematic Motion Analysis Motion Analysis Project Objective: Students demonstrated proper video motion analysis collection techniques for a self-selected sport movement. The students integrated a qualitative descriptive analysis with the numerical kinematic analysis provided by the Ariel Performance Analysis System (APAS) and Dartfish Sport Visualization software.

- 15 out of 15 students in PE685 Biomechanics of Sports attained a score of 80% or more for the biomechanical motion analysis research project. See supporting documents.

**Findings for Effective Motion Analysis Techniques**

(Submitted Plan and Assessment Findings; 2012-2013 Assessment Cycle)

**Summary of Findings:** 82% of the students attained a 80% on their biomechanical motion.
Status Report

Action Statuses

MA/MS in Phys Ed(Exercise Science) Outcome Set

Learning Objective 4 - Effective Motion Analysis Techniques
Students will demonstrate proper quantitative and qualitative motion analysis techniques.

**Outcome 4.1**
Quantitative & Qualitative Motion Analysis
Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement skills for effective movement patterns.

**Action:** Reduce time challenged projects that lead to only 82% of students attaining target grade of 80% on biomechanical research project.

**Action Details:** Revise class syllabus in which the videography techniques will be introduced 2 weeks earlier in order to provide more time for students to complete their research projects. Be more stringent about coaching absences and encourage immediate makeup work.

**Implementation Plan (timeline):** Implementation next Fall semester: when the PE685 Biomechanics class will next be taught.

**Key/Responsible Personnel:** Alfred Finch

**Measures:**

**Resource Allocations:**

**Priority:** High

---

**Status** for Reduce time challenged projects that lead to only 82% of students attaining target grade of 80% on biomechanical research project.

**Current Status:** Completed

**Resource Allocation(s) Status:** The fall syllabus for the biomechanics project has been moved up by 2 weeks in order to provide more time to complete a better research project in a more timely manner.

**Next Steps/Additional Information:** The projects were complete time with help of the earlier project scheduling. Next semester we will have to see how the new schedule will work for the biomechanics class with the coaching students in the class because of their staggered scheduling.
Status Summary

The instructional content for biomechanical video analysis was advanced 2 weeks in the semester syllabus in order to provide additional time for students to complete biomechanical research project. The coaching students are not enrolled this semester in the class because of their program sequencing so the impact of coaching commitments has not existed this semester.

Summary of Next Steps

Will need to evaluate the class time allocation between APAS 3D motion analysis techniques used to teach advanced biomechanical principles versus using simplistic 2D Dartfish software that is used for providing low level analysis lacking true accuracy but rapid coaching feedback.
## Assessment Plan

### Outcomes and Measures

### MA/MS in Phys Ed(Exercise Science) Outcome Set

#### Learning Objective 1 Research

Implement knowledge application of research in sport and exercise science.

<table>
<thead>
<tr>
<th>Outcome 1.2</th>
<th>Measure: Demonstrate technical writing required in the development of a research proposal</th>
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<tr>
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<td><strong>Target:</strong> 90% of students will earn 80/100 points for the development of a research proposal that is presented to class.</td>
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<td><strong>Implementation Plan (timeline):</strong> Spring semester</td>
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<td><strong>Responsible Individual(s):</strong> Alfred Finch</td>
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</table>

#### Learning Objective 3 Physical Conditioning

Apply advanced physical conditioning theory, principles and testing modalities in sport and exercise settings.

<table>
<thead>
<tr>
<th>Outcome 3.1</th>
<th>Measure: PE 675/575 Hypoxic Training content</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Direct - Exam</td>
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<td></td>
<td><strong>Details/Description:</strong> Student will explain the benefits and contraindications of hypoxic training.</td>
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<tr>
<td></td>
<td><strong>Target:</strong> 85% of students will score 7/10 points.</td>
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<td></td>
<td><strong>Implementation Plan (timeline):</strong> Spring 2014 (old 675 course and Spring 2015 new 575 course)</td>
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<td><strong>Implementation Plan (timeline):</strong> 2012 and every 2 years thereafter.</td>
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<td><strong>Responsible Individual(s):</strong> Dr. Neil Fleming</td>
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### Learning Objective 4 - Effective Motion Analysis Techniques
Outcome 4.1  
Quantitative & Qualitative Motion Analysis  
Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement skills for effective movement patterns.

**Measure:** Effective Motion Analysis Techniques  
Direct - Student Artifact

**Details/Description:** Students will demonstrate proper quantitative and qualitative motion analysis in an individual research project.

**Target:** 90% of students will earn 80/100 points for a biomechanical motion analysis written project and oral presentation that includes video analysis.

**Implementation Plan (timeline):** Fall semester

**Responsible Individual(s):** Dr. Alfred Finch

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**Assessment Findings**

**Finding per Measure**

MA/MS in Phys Ed(Exercise Science) Outcome Set

**Learning Objective 1 Research**  
Implement knowledge application of research in sport and exercise science.

**Outcome 1.2**  
Articulate understanding of research in the health/fitness setting through writing.

**Measure:** Demonstrate technical writing required in the development of a research proposal  
Direct - Student Artifact

**Details/Description:** Students will develop a research proposal for an individual research project which includes the problem, literature review, research methodology, and statistical analysis procedures.

**Target:** 90% of students will earn 80/100 points for the development of a research proposal that is presented to class.

**Implementation Plan (timeline):** Spring semester

**Responsible Individual(s):** Alfred Finch

**Findings** for Demonstrate technical writing required in the development of a research proposal

**Summary of Findings:** 7/10 students earned an 80% or higher on their research paper proposal.

**Results:** Target Achievement: Not Met

**Recommendations:** Make sure there are timeline checkpoints in order to facilitate students completing the research proposal in a timely manner.

**Reflections/Notes:** Class was taught by a new instructor

**These Findings are associated with the following Actions:**

Increase Exercise Science graduate student research emphasis  
(Action Plan; 2013-2014 Assessment Cycle)

---

**Learning Objective 3 Physical Conditioning**  
Apply advanced physical conditioning theory, principles and testing modalities in sport and exercise settings.
Outcome 3.1

Explain physiological responses to aerobic exercise testing and training.

**Measure:** PE 675/575 Hypoxic Training content

**Direct - Exam**

**Details/Description:** Student will explain the benefits and contraindications of hypoxic training.

**Target:** 85% of students will score 7/10 points.

**Implementation Plan (timeline):** Spring 2014 (old 675 course and Spring2015 new 575 course)

**Responsible Individual(s):** Dr. Thomas Nesser

**Findings for PE 675/575 Hypoxic Training content**

**Summary of Findings:** 100% of the students earned an 80% of higher on the concept of hypoxic training.

**Results:** Target Achievement: Exceeded

**Recommendations :**

**Reflections/Notes :**

Outcome 3.2

Explain physiological responses to resistance exercise testing and training.

**Measure:** PE 684 Neuromuscular concepts of strength development

**Direct - Other**

**Details/Description:** Students will explain and demonstrate the relationship between joint ROM and functional movement, neuromuscular effects on force development, and the elastic properties of the connective tissue. Successful understanding of the concepts will be measured by 80% of the students scoring 80% on the final examination on muscular strength developments and also 80% of the students attaining an 80% on their neuromuscular laboratory project report.

**Target:** 80% of students will score 80% on the neuromuscular concepts final exam and 80% of the students will attain a grade of 80% on their neuromuscular laboratory project.

**Implementation Plan (timeline):** 2012 and every 2 years thereafter.

**Responsible Individual(s):** Dr. Neil Fleming

**Findings for PE 684 Neuromuscular concepts of strength development**

**Summary of Findings:** 6/10 students earned an 80% on the muscular strength content portion of the final exam.

**Results:** Target Achievement: Not Met

**Recommendations :**

**Reflections/Notes :** Examine the rigor of the course content and emphasize to students that course is content intensive

Learning Objective 4 - Effective Motion Analysis Techniques

Students will demonstrate proper quantitative and qualitative motion analysis techniques.

Outcome 4.1

Quantitative & Qualitative Motion Analysis

Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement

**Measure:** Effective Motion Analysis Techniques

**Direct - Student Artifact**

**Details/Description:** Students will demonstrate proper quantitative and qualitative motion analysis in an individual research project

**Target:** 90% of students will earn 80/100 points for a biomechanical motion analysis written project and oral presentation that includes video analysis.
Implementation Plan (timeline): Fall semester  
Responsible Individual(s): Dr. Alfred Finch

Findings for Effective Motion Analysis Techniques

Summary of Findings: 95% of the students earned a 80% or higher on their biomechanical analysis research project.

Results: Target Achievement: Exceeded

Recommendations:
Reflections/Notes: Starting the technical content for the data collection portion of the project earlier, reduced the compacted timeline.

These Findings are associated with the following Actions:
Early introduction of motion analysis techniques using Dartfish sport visualization software
(Action Plan; 2013-2014 Assessment Cycle)

Overall Recommendations

No text specified

Overall Reflection

No text specified

Action Plan

Actions

MA/MS in Phys Ed(Exercise Science) Outcome Set

Learning Objective 1 Research
Implement knowledge application of research in sport and exercise science.

Outcome 1.1
Apply knowledge of basic research design.
No actions specified

Outcome 1.2
Articulate understanding of research in the health/fitness setting through writing.
Action: Increase Exercise Science graduate student research emphasis

This Action is associated with the following Findings
Findings for Demonstrate technical writing required in the development of a research proposal
(Assessment Plan and Assessment Findings; 2013-2014 Assessment Cycle)
Summary of Findings: 7/10 students earned an 80% or higher on their research paper proposal.

Action Details: Only 70% of Exercise Science students attained an 80% on their research proposal. Increase hands-on laboratory experiences in biomechanics, neuromuscular physiology and cardiovascular physiology classes. This transition is necessary when making the migration from general advanced exercise physiology classes to discipline specific, such as neuromuscular and cardiovascular physiology. This will provide more familiarity with the research instruments available in the laboratory that could be utilized in developing Exercise Science research projects and place greater emphasis on conducting...
master's thesis and independent research projects.

**Implementation Plan (timeline):** Fall 2014 and Spring 2015

**Key/Responsible Personnel:** A. Finch, M. Feeback, C. Carriker & N. Fleming

**Measures:**

**Resource Allocations:**

**Priority:**

---

**Outcome 1.3**

Demonstrate understanding of statistical principles through data collection, analysis, and interpretation.

**Action:** Facilitation of graduate student research, data collection and analysis

**This Action is associated with the following Findings**

No supporting Findings have been linked to this Action.

**Action Details:** Increase faculty research endeavors and integrate graduate students in the research projects. Increase number of graduate students assigned to assist in laboratory experiences and research data collection. Will need to reduce graduate faculty teaching load to provide time for conducting research projects.

**Implementation Plan (timeline):** Fall 2014 & Spring 2015

**Key/Responsible Personnel:** A. Finch, M. Feeback, C. Carriker, & N. Fleming

**Measures:**

**Resource Allocations:**

**Priority:**

---

**Learning Objective 4 - Effective Motion Analysis Techniques**

Students will demonstrate proper quantitative and qualitative motion analysis techniques.

**Outcome 4.1**

**Quantitative & Qualitative Motion Analysis**

Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement skills for effective movement patterns.

**Action:** Early introduction of motion analysis techniques using Dartfish sport visualization software

**This Action is associated with the following Findings**

**Findings for Effective Motion Analysis Techniques**

(Assessment Plan and Assessment Findings; 2013-2014 Assessment Cycle)

**Summary of Findings:** 95% of the students earned a 80% or higher on their biomechanical analysis research project.

**Action Details:** Utilize the new version of the Dartfish sport analysis software to teach biomechanical analysis techniques.

**Implementation Plan (timeline):** Fall 2014

**Key/Responsible Personnel:** A. Finch

**Measures:**

**Resource Allocations:**

**Priority:**
Action: Reduce time challenged projects that lead to only 82% of students attaining target grade of 80% on biomechanical research project.

This Action is associated with the following Findings
No supporting Findings have been linked to this Action.

Action Details: Revise class syllabus in which the videography techniques will be introduced 2 weeks earlier in order to provide more time for students to complete their research projects. Be more stringent about coaching absences and encourage immediate makeup work.

Implementation Plan (timeline): Implemented next Fall semester: when the PE685 Biomechanics class will next be taught.

Key/Responsible Personnel: Alfred Finch

Measures:

Resource Allocations:

Priority: High

---

Learning Objective 5 Assessment and Prescription
Prescribe appropriate exercises based on individual assessments.

Outcome 4.1
Demonstrate and analyze use of appropriate pre-screening techniques.

Action: Offer Cardiovascular physiology effects

This Action is associated with the following Findings
No supporting Findings have been linked to this Action.

Action Details: Need adequate staffing and graduate student body critical mass to offer a specialty course in cardiovascular physiology in order to provide fitness assessment, and cardiovascular risk factors, and exercise prescription for asymptomatic and symptomatic populations. This emphasis can range from a normal population, athletic and cardiovascular diseased populations

Implementation Plan (timeline): Spring 2015

Key/Responsible Personnel: M. Feeback, C. Carriker & N. Fleming

Measures:

Resource Allocations:

Priority:

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Status Report

Action Statuses

MA/MS in Phys Ed(Exercise Science) Outcome Set

Learning Objective 1 Research
Implement knowledge application of research in sport and exercise science.

Outcome 1.1
Apply knowledge of basic research design.

No actions specified
### Outcome 1.2

**Articulate understanding of research in the health/fitness setting through writing.**

**Action:** Increase Exercise Science graduate student research emphasis

**Action Details:** Only 70% of Exercise Science students attained an 80% on their research proposal. Increase hands-on laboratory experiences in biomechanics, neuromuscular physiology and cardiovascular physiology classes. This transition is necessary when making the migration from general advanced exercise physiology classes to discipline specific, such as neuromuscular and cardiovascular physiology. This will provide more familiarity with the research instruments available in the laboratory that could be utilized in developing Exercise Science research projects and place greater emphasis on conducting master's thesis and independent research projects.

**Implementation Plan (timeline):** Fall 2014 and Spring 2015

**Key/Responsible Personnel:** A. Finch, M. Feeback, C. Carriker & N. Fleming

**Measures:**

**Resource Allocations:**

**Priority:**

**Status for Increase Exercise Science graduate student research emphasis**

**Current Status:** In Progress

**Resource Allocation(s) Status:** Students are writing a research proposal for their culminating experience as a class requirement. Exercise Science position search with research emphasis was approved to replace a departing faculty member. This area will be further developed and the graduate school helped fund graduate assistants during the summer to advance the development of their thesis proposals.

**Next Steps/Additional Information:**

### Outcome 1.3

**Demonstrate understanding of statistical principles through data collection, analysis, and interpretation.**

**Action:** Facilitation of graduate student research, data collection and analysis

**Action Details:** Increase faculty research endeavors and integrate graduate students in the research projects. Increase number of graduate students assigned to assist in laboratory experiences and research data collection. Will need to reduce graduate faculty teaching load to provide time for conducting research projects.

**Implementation Plan (timeline):** Fall 2014 & Spring 2015

**Key/Responsible Personnel:** A. Finch, M. Feeback, C. Carriker, & N. Fleming

**Measures:**

**Resource Allocations:**

**Priority:** High

**Status for Facilitation of graduate student research, data collection and analysis**

**Current Status:** In Progress

**Resource Allocation(s) Status:** One dedicated laboratory graduate assistant was funded through external funding this year and the graduate school has funded a graduate assistant for Exercise Physiology next year and ongoing discussions are being held to procure/allocate laboratory assistance in the biomechanics area. Summer stipend support from the graduate...
school will help graduate students continue their research interests.

**Next Steps/Additional Information:**

---

**Learning Objective 4 - Effective Motion Analysis Techniques**

Students will demonstrate proper quantitative and qualitative motion analysis techniques.

### Outcome 4.1

**Quantitative & Qualitative Motion Analysis**

Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement skills for effective movement patterns.

#### Action: Early introduction of motion analysis techniques using Dartfish sport visualization software

**Action Details:** Utilize the new version of the Dartfish sport analysis software to teach biomechanical analysis techniques.

**Implementation Plan (timeline):** Fall 2014

**Key/Responsible Personnel:** A. Finch

**Measures:**

**Resource Allocations:**

**Priority:**

**Status** for Early introduction of motion analysis techniques using Dartfish sport visualization software

**Current Status:** In Progress

**Resource Allocation(s) Status:** New software projects were implemented in 2013-2014 and a newer version of the software has been introduced on the marketplace and will need to be acquired for offering the Dartfish Certification Technologist course at ISU.

**Next Steps/Additional Information:**

#### Action: Reduce time challenged projects that lead to only 82% of students attaining target grade of 80% on biomechanical research project.

**Action Details:** Revise class syllabus in which the videography techniques will be introduced 2 weeks earlier in order to provide more time for students to complete their research projects. Be more stringent about coaching absences and encourage immediate makeup work.

**Implementation Plan (timeline):** Implemented next Fall semester: when the PE685 Biomechanics class will next be taught.

**Key/Responsible Personnel:** Alfred Finch

**Measures:**

**Resource Allocations:**

**Priority:** High

**Status** for Reduce time challenged projects that lead to only 82% of students attaining target grade of 80% on biomechanical research project.
Current Status: Completed

Resource Allocation(s) Status: The biomechanical research project was introduced earlier in the course and all projects were completed on time.

Next Steps/Additional Information:

Learning Objective 5 Assessment and Prescription
Prescribe appropriate exercises based on individual assessments.

Outcome 4.1
Demonstrate and analyze use of appropriate pre-screening techniques.

Action: Offer Cardiovascular physiology effects

Action Details: Need adequate staffing and graduate student body critical mass to offer a specialty course in cardiovascular physiology in order to provide fitness assessment, and cardiovascular risk factors, and exercise prescription for asymptomatic and symptomatic populations. This emphasis can range from a normal population, athletic and cardiovascular diseased populations

Implementation Plan (timeline): Spring 2015

Key/Responsible Personnel: M. Feeback, C. Carriker & N. Fleming

Measures:

Resource Allocations:

Priority:

Status for Offer Cardiovascular physiology effects

Current Status: In Progress

Resource Allocation(s) Status: Cardiovascular physiology course is being offered the first time in the Spring 2015 and new faculty assigned the course.

Next Steps/Additional Information:

Status Summary

Further curricular revisions will be forthcoming but will have to wait until staffing changes are solidified in the coming year.

Summary of Next Steps

Further curricular revisions will be needed in the coming year but changes will be pending based on changes in staffing.
Assessment Plan

Outcomes and Measures

MA/MS in Phys Ed(Exercise Science) Outcome Set

Learning Objective 1 Research
Implement knowledge application of research in sport and exercise science.

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<th>Outcome 1.2</th>
<th>Articulate understanding of research in the health/fitness setting through writing.</th>
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<td><strong>Measure:</strong></td>
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<td>Direct - Student Artifact</td>
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**Details/Description:** Students will develop a research proposal for an individual research project which includes the problem, literature review, research methodology, and statistical analysis procedures.

**Target:** 90% of students will earn 80/100 points for the development of a research proposal that is presented to class.

**Implementation Plan (timeline):** Spring semester

**Responsible Individual(s):** Alfred Finch or other assigned Exercise Science faculty

Learning Objective 3 Physical Conditioning
Apply advanced physical conditioning theory, principles and testing modalities in sport and exercise settings.

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<th>Outcome 3.1</th>
<th>Explain physiological responses to aerobic exercise testing and training.</th>
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<td><strong>Measure:</strong></td>
<td>PE 576 Hypoxic Training content</td>
</tr>
<tr>
<td>Direct - Exam</td>
<td></td>
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</table>

**Details/Description:** Student will explain the benefits and contraindications of hypoxic training.

**Target:** 85% of students will score 7/10 points on the topic of hypoxic training.

**Implementation Plan (timeline):** Spring 2015 (old 675 course and Spring 2015 new 576 course)

**Responsible Individual(s):** Dr. Thomas Nesser

<table>
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<th>Outcome 3.2</th>
<th>Explain physiological responses to resistance exercise testing and training.</th>
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<td>PE 684 Neuromuscular concepts of strength development</td>
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**Details/Description:** Students will explain and demonstrate the relationship between joint ROM and functional movement, neuromuscular effects on force development, neural reflexes, and the elastic properties of the connective tissue. Successful understanding of the concepts will be measured by 80% of the students scoring 80% on the final examination on muscular strength developments and also 80% of the students attaining an 80% on their neuromuscular laboratory project reports.

**Target:** 80% of students will score 80% on the neuromuscular concepts final exam and 80% of the students will attain a grade of 80% on their neuromuscular laboratory projects.

**Implementation Plan (timeline):** 2012 and every 2 years thereafter.

**Responsible Individual(s):** Drs. Alfred Finch & Neil Fleming

Learning Objective 4 - Effective Motion Analysis Techniques
Students will demonstrate proper quantitative and qualitative motion analysis techniques.

**Outcome 4.1**
**Quantitative & Qualitative Motion Analysis**

Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement skills for effective movement patterns.

**Measure:** Effective Motion Analysis Techniques
Direct - Student Artifact

**Details/Description:** Students will demonstrate proper quantitative and qualitative motion analysis techniques in conducting an individual research project using the Ariel Performance Analysis System (APAS) and Dartfish Motion Biomechanical Visualization software.

**Target:** 90% of students will earn 80/100 points for a biomechanical motion analysis written project and oral presentation that includes video analysis.

**Implementation Plan (timeline):** Fall semester

**Responsible Individual(s):** Dr. Alfred Finch

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**Assessment Findings**

**Finding per Measure**

**MA/MS in Phys Ed(Exercise Science) Outcome Set**

**Learning Objective 1 Research**

Implement knowledge application of research in sport and exercise science.

**Outcome 1.2**

Articulate understanding of research in the health/fitness setting through writing.

**Measure:** Demonstrate technical writing required in the development of a research proposal
Direct - Student Artifact

**Details/Description:** Students will develop a research proposal for an individual research project which includes the problem, literature review, research methodology, and statistical analysis procedures.

**Target:** 90% of students will earn 80/100 points for the development of a research proposal that is presented to class.

**Implementation Plan (timeline):** Spring semester

**Responsible Individual(s):** Alfred Finch or other assigned Exercise Science faculty

**Findings** for Demonstrate technical writing required in the development of a research proposal

**Summary of Findings:** 6 out of 7 students (86%) earned an 80% or better on their research proposal project.

**Results:** Target Achievement: Not Met

**Recommendations:** Require subtasks to be submitted by students in order to help them maintain a research timeline for the proposal and provide more feedback during the proposal development process. 6 out of 7 Exercise Science students successfully earned an 80% on their research project proposal assignment. One incomplete was also submitted.

In the research class, the components of the research proposal will be required to early submission in order to help students remain on a timeline and provide additional feedback on the proposal development. Also, more experimental/statistical design will be covered in order to facilitate better understanding of the final stage of analysis provided in the research proposal.

**Reflections/Notes:** Also, more experimental design and corresponding statistical design need to be covered.
### Learning Objective 3 Physical Conditioning

Apply advanced physical conditioning theory, principles and testing modalities in sport and exercise settings.

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<td>Dr. Thomas Nesser</td>
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</table>

**Findings for PE 576 Hypoxic Training content**

- **Summary of Findings:** 4 out of 5 (80%) of students successfully earned an 80% or better on the hypoxic training content.
- **Results:** Target Achievement: Met
- **Recommendations:** Increase class enrollment in order to improve interactive discussion and help make sure course can be consistently scheduled.
- **Reflections/Notes:** This course offering was a new configuration that had a hybrid class format with senior undergraduate students also. It may take some time for the class refinement necessary to maximize student learning.

<table>
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<tr>
<th><strong>Outcome 3.2</strong></th>
<th>Explain physiological responses to resistance exercise testing and training.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measure:</strong></td>
<td>PE 684 Neuromuscular concepts of strength development</td>
</tr>
<tr>
<td><strong>Details/Description:</strong></td>
<td>Students will explain and demonstrate the relationship between joint ROM and functional movement, neuromuscular effects on force development, neural reflexes, and the elastic properties of the connective tissue. Successful understanding of the concepts will be measured by 80% of the students scoring 80% on the final examination on muscular strength developments and also 80% of the students attaining an 80% on their neuromuscular laboratory project reports.</td>
</tr>
<tr>
<td><strong>Target:</strong></td>
<td>80% of students will score 80% on the neuromuscular concepts final exam and 80% of the students will attain a grade of 80% on their neuromuscular laboratory projects.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline):</strong></td>
<td>2012 and every 2 years thereafter.</td>
</tr>
<tr>
<td><strong>Responsible Individual(s):</strong></td>
<td>Drs. Alfred Finch &amp; Neil Fleming</td>
</tr>
</tbody>
</table>

**Findings for PE 684 Neuromuscular concepts of strength development**

- **Summary of Findings:** 8 out of 8 students (100%) earned a score of 80% on the responses to resistance training.
- **Results:** Target Achievement: Exceeded
- **Recommendations:** Add additional laboratory experiences that reflect neuromuscular applications in sports and rehabilitation.
- **Reflections/Notes:** Reduce the time period allowed for the EMG laboratory assignment and provide faster feedback on laboratory write-ups.

### Learning Objective 4 - Effective Motion Analysis Techniques

Students will demonstrate proper quantitative and qualitative motion analysis techniques.
**Outcome 4.1**
Quantitative & Qualitative Motion Analysis

Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement skills for effective movement patterns.

### Measure: Effective Motion Analysis Techniques
Direct - Student Artifact

**Details/Description:** Students will demonstrate proper quantitative and qualitative motion analysis techniques in conducting an individual research project using the Ariel Performance Analysis System (APAS) and Dartfish Motion Biomechanical Visualization software.

**Target:** 90% of students will earn 80/100 points for a biomechanical motion analysis written project and oral presentation that includes video analysis.

**Implementation Plan (timeline):** Fall semester

**Responsible Individual(s):** Dr. Alfred Finch

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**Findings for Effective Motion Analysis Techniques**

**Summary of Findings:** 8/8 of the Exercise Science students in PE685 Biomechanics of Sports Techniques class attained a grade of 80% or higher on their motion analysis projects.

**Results:** Target Achievement: Exceeded

**Recommendations:** Start biomechanical research project earlier to avoid end of the semester crunch.

**Reflections/Notes:** Introduce video analysis techniques earlier in course in order to have students begin video filming project earlier in semester.

**Substantiating Evidence:**
- PE685 Biomechanics Motion Analysis project rubric results (Word Document (Open XML)) (See appendix)

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**Overall Recommendations**

The research class needs to provide more statistical applications in order to facilitate graduate student research projects undertaken.

The biomechanics research project needs to be started earlier by students to help reduce time crunch at the end of the semester.

PE475/575 will undergo further refinement as a combined undergraduate/graduate class and practical strength development applications that are appropriate for both levels will be adjusted.

Graduate student enrollment/requirement and graduate assistant initiative is needed to maintain critical mass for consistent graduate class offering.

Increase number of graduate assistants working as Exercise Science laboratory assistants in order to increase their hands-on knowledge and technical skills which will facilitate greater graduate research productivity.

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**Overall Reflection**

Need to have greater stability in the Exercise Science graduate core faculty because the program has experienced significant faculty turnover in past several years and this has adversely affected scheduling and laboratory research productivity by faculty and graduate students. Current faculty would like to emphasize masters thesis and research project options rather than internship option.

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**Action Plan**

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**Status Report**
## Assessment Plan

### Outcomes and Measures

### MA/MS in Phys Ed (Exercise Science) Outcome Set

#### Learning Objective 1 Research
Implement knowledge application of research in sport and exercise science.

<table>
<thead>
<tr>
<th>Outcome 1.2</th>
<th><strong>Measure:</strong> Demonstrate technical writing required in the development of a research proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Direct - Student Artifact</strong>\n</td>
</tr>
<tr>
<td><strong>Target:</strong></td>
<td>90% of students will earn 80/100 points for the development of a research proposal that is presented to class.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline):</strong> Spring semester</td>
<td></td>
</tr>
<tr>
<td><strong>Responsible Individual(s):</strong> Alfred Finch or other assigned Exercise Science faculty</td>
<td></td>
</tr>
</tbody>
</table>

#### Learning Objective 3 Physical Conditioning
Apply advanced physical conditioning theory, principles and testing modalities in sport and exercise settings.

<table>
<thead>
<tr>
<th>Outcome 3.1</th>
<th><strong>Measure:</strong> PE 576 Hypoxic Training content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Direct - Exam</strong>\n</td>
</tr>
<tr>
<td><strong>Target:</strong></td>
<td>85% of students will score 7/10 points on the topic of hypoxic training.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline):</strong> Spring 2015 (old 675 course and Spring 2015 new 576 course)</td>
<td></td>
</tr>
<tr>
<td><strong>Responsible Individual(s):</strong> Dr. Thomas Nesser</td>
<td></td>
</tr>
</tbody>
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<tr>
<th>Outcome 3.2</th>
<th><strong>Measure:</strong> PE 684 Neuromuscular concepts of strength development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Direct - Other</strong>\n</td>
</tr>
<tr>
<td><strong>Target:</strong></td>
<td>80% of students will score 80% on the neuromuscular concepts final exam and 80% of the students will attain a grade of 80% on their neuromuscular laboratory projects.</td>
</tr>
<tr>
<td><strong>Implementation Plan (timeline):</strong> 2012 and every 2 years thereafter.</td>
<td></td>
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<tr>
<td><strong>Responsible Individual(s):</strong> Drs. Alfred Finch &amp; Neil Fleming</td>
<td></td>
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</table>

#### Learning Objective 4 - Effective Motion Analysis Techniques
Students will demonstrate proper quantitative and qualitative motion analysis techniques.

**Outcome 4.1**
Quantitative & Qualitative Motion Analysis
Students will demonstrate proper quantitative and qualitative motion analysis techniques while evaluating selected human movement skills for effective movement patterns

**Measure:** Effective Motion Analysis Techniques
Direct - Student Artifact

**Details/Description:** Students will demonstrate proper quantitative and qualitative motion analysis techniques in conducting an individual research project using the Ariel Performance Analysis System (APAS) and Dartfish Motion Biomechanical Visualization software.

**Target:** 90% of students will earn 80/100 points for a biomechanical motion analysis written project and oral presentation that includes video analysis.

**Implementation Plan (timeline):** Fall semester

**Responsible Individual(s):** Dr. Alfred Finch

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**Assessment Findings**

**Finding per Measure**

**MA/MS in Phys Ed(Exercise Science) Outcome Set**

**Learning Objective 1 Research**
Implement knowledge application of research in sport and exercise science.

**Outcome 1.2**
Articulate understanding of research in the health/fitness setting through writing.

**Measure:** Demonstrate technical writing required in the development of a research proposal
Direct - Student Artifact

**Details/Description:** Students will develop a research proposal for an individual research project which includes the problem, literature review, research methodology, and statistical analysis procedures.

**Target:** 90% of students will earn 80/100 points for the development of a research proposal that is presented to class.

**Implementation Plan (timeline):** Spring semester

**Responsible Individual(s):** Alfred Finch or other assigned Exercise Science faculty

**Findings** for Demonstrate technical writing required in the development of a research proposal

*No Findings Added*

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**Learning Objective 3 Physical Conditioning**
Apply advanced physical conditioning theory, principles and testing modalities in sport and exercise settings.

**Outcome 3.1**
Explain physiological responses to aerobic exercise testing and training.

**Measure:** PE 576 Hypoxic Training content
Direct - Exam

**Details/Description:** Student will explain the benefits and contraindications of hypoxic training.

**Target:** 85% of students will score 7/10 points on the topic of hypoxic training.

**Implementation Plan (timeline):** Spring 2015 (old 675 course and Spring 2015 new 576 course)

**Responsible Individual(s):** Dr. Thomas Nesser

**Findings** for PE 576 Hypoxic Training content
### Outcome 3.2
Explain physiological responses to resistance exercise testing and training.

**Measure:** PE 684 Neuromuscular concepts of strength development

**Details/Description:** Students will explain and demonstrate the relationship between joint ROM and functional movement, neuromuscular effects on force development, neural reflexes, and the elastic properties of the connective tissue. Successful understanding of the concepts will be measured by 80% of the students scoring 80% on the final examination on muscular strength developments and also 80% of the students attaining an 80% on their neuromuscular laboratory project reports.

**Target:** 80% of students will score 80% on the neuromuscular concepts final exam and 80% of the students will attain a grade of 80% on their neuromuscular laboratory projects.

**Implementation Plan (timeline):** 2012 and every 2 years thereafter.

**Responsible Individual(s):** Drs. Alfred Finch & Neil Fleming

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### Learning Objective 4 - Effective Motion Analysis Techniques

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**Measure:** Effective Motion Analysis Techniques

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**Implementation Plan (timeline):** Fall semester

**Responsible Individual(s):** Dr. Alfred Finch

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### Overall Recommendations

*No text specified*

### Overall Reflection

*No text specified*

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### Action Plan
Program Outcomes Assessment
MA/MS in Phys Ed(Exercise Science)

❖ Status Report
2016-2017 Assessment Cycle

Assessment Plan

Assessment Findings
2017-2018 Assessment Cycle

Assessment Plan

Assessment Findings
2018-2019 Assessment Cycle

Assessment Plan

Assessment Findings
2019-2020 Assessment Cycle

Assessment Plan

Assessment Findings
Appendix

A. Graduate Exercise Sci Map (Curriculum Map)
B. PE685 Bio F2011 Outline Griffith.doc (Microsoft Word)
C. Research Proposal Manuscript Student1 (Adobe Acrobat Document)
D. Research Proposal Manuscript Student2 (Adobe Acrobat Document)
E. Research Proposal Manuscript Student3 (Adobe Acrobat Document)
F. Research Proposal Manuscript Student4 (Adobe Acrobat Document)
G. Biomechanics Project Student1 (Adobe Acrobat Document)
H. Biomechanics Project Student2 (Adobe Acrobat Document)
I. Biomechanics Project Student3 (Adobe Acrobat Document)
J. Biomechanics Project Student4 (Adobe Acrobat Document)
L. PE685 Biomechanics Project Elements (Word Document (Open XML))
M. PE685 Biomechanics Motion Analysis project rubric results (Word Document (Open XML))