

**Assessment Report
MS in Exercise Science
Division of Exercise Science, Sport and Recreation
Academic Year 2007-2008**

Program Description

The Division of Exercise Science, Sport, and Recreation offers the Master of Science in Exercise Science to prepare students for allied health and medical careers in the hospital and medical center, commercial, community, corporate wellness, cardiopulmonary rehabilitation, diabetes management, performance assessment and enhancement settings, and related research positions. Preparation for such careers includes an emphasis on leadership roles and skills that permit one to work with individuals on a client/patient/subject continuum extending from the elite athlete to those with chronic disorder/disease to the cardiac transplantation recipient as well as the in between – the recreational athlete and those simply wishing to stay healthy by living sensibly.

The course of study is a two-year program with either a 36 or 39-hour requirement. Admission to the program requires a 2.75 GPA, an appropriate undergraduate/graduate background, completion of the GRE with 25th percentile minimums, a personal interview, three letters of reference, and admission to the Graduate College. The Clinical Applied Area of Emphasis requires completion of a clinical internship. The Exercise Physiology Area of Emphasis requires completion of a thesis or an exercise science internship. The Athletic Training Area of Emphasis requires completion of a thesis or an appropriate internship.

I. PROGRAM GOALS:

1. Student Academic Achievement

- 1.1 The student will demonstrate knowledge of subject matter in the field, including traditional sources of information and current literature.
- 1.2 The student will demonstrate knowledge of statistics, research design, and the ability to interpret current research articles.
- 1.3 The student will successfully apply carefully structured strategies learned in class to real-world problem-solving situations.
- 1.4 The student will demonstrate skillful use of current laboratory and related technical equipment as well as the related procedures and techniques.
- 1.5 The student will demonstrate respect for the client/participant/athlete/patient entrusted to his/her care [i.e., “the clinical attitude”].
- 1.6 The student will demonstrate respect for scientific and clinical assessment procedures and carefully taken data.
- 1.7 The student will develop careful, thoughtful, thorough, and responsible attitudes and work habits in the clinical and related allied health care settings.

2. Faculty Development

- 2.1 Classes will be taught by full-time, tenure track faculty with or actively pursuing a terminal degree.
- 2.2 Tenure track faculty will participate in scholarly activity.
- 2.3 Tenure track faculty will attend professional conferences and workshops, assisting them in their efforts to remain informed in their field.

3. Curriculum Development

- 3.1 The curriculum will be consistent with current opinion in the field as established by professional societies.
- 3.2 The curriculum will reflect new theoretical and technical developments in

the field. This includes an emphasis on the related scientific literature.

3.3 This unique curriculum will continue to prepare students for a broad spectrum of careers in health promotion, disease prevention, rehabilitation, medicine, sports medicine, sports science, and the pharmaceutical industry.

3.4 Content and materials to prepare students for other allied health careers will continue to be incorporated in the curriculum when opportunities are presented.

II. LEARNING OUTCOMES:

1. Program Learning Outcomes:

- 1.1 Students entering the program will have a minimum 2.75 GPA, an undergraduate course in exercise physiology, kinesiology, fitness assessment, chemistry, and some relevant experience. Applicants with less than a 2.75 GPA (but over 2.50) may be admitted on probation if their GRE Score meets the minimum requirements. A student's undergraduate major should be compatible with their graduate area of emphasis.
- 1.2 The student will be skillful in the research application of basic statistical analyses.
- 1.3 Students must be capable of describing basic research design. This includes *The Scientific Method* as well as analytic research, descriptive research, experimental research, and qualitative research methods.
- 1.4 The student will be familiar with and confident in discussions of contemporary related literature and current scientific opinion.
- 1.5 Students must be informed and able to identify and implement current clinical practice guidelines in their area of emphasis. This would include the following:
 1. Screening, stratification, and risk stratification of clients/patients/subjects.
 2. Policies and procedures for sports medicine, sports science performance assessment and enhancement, ambulatory Phase I, Phase II, and Phase III-Long-term care cardiac patients.
 3. Management procedures for coronary artery bypass graft surgery [CABGS], percutaneous transluminal coronary angioplasty [PTCA], and cardiac transplantation patients. Include the application of cardiac imaging at rest and with exercise stress here.
 4. Perform multi-stage exercise testing [MSET] skillfully as well as understand and apply contraindications to exercise stress testing and exercise.
 5. Prepping patients /participants/clients, including athletes for exercise testing, exercise therapy, and conditioning/training.
 6. Develop and teach exercise prescription for all modalities, manage patients/clients with chronic disorder through a program and develop progress reports.
 7. Interpret lipid profiles and relate to client outcomes.
 8. Develop skill in measuring blood pressure and heart rate assessment.
 9. Relate risk factor identification and management to risk reduction and outcomes for a variety of patients, clients, athletes, etc.
 10. Assist physicians with physical examinations.
 11. Develop EKG reading and interpretation skills.
 12. Understand the clinical procedures for determining the occurrence of a myocardial infarction.

13. Understand, interpret and analyze medical profiles and case study findings.
 14. Develop business skills and acumen.
 15. Develop skills and background in Advanced Cardiac Life Support.
 16. Develop an appreciation for “Doctor’s Orders” and standing orders relative to the occurrence of an MI, ACLS, exercise prescription, and related clinical procedures.
 17. Develop skills with metabolic assessment of human performance and physical work capacity [PWC] as well as related clinical variables.
 18. Develop skills with human performance assessment and performance enhancement.
 19. Develop a *clinical attitude* – respect for the client/patient.
 20. Develop a *scientific attitude* – respect for clinical assessment procedures and carefully taken data.
 21. A final, all-encompassing, objective is the development of careful, thoughtful, thorough, and responsible attitudes and work habits in the clinical and allied health settings.
- 1.6 The student will demonstrate computer skills relative to their area of emphasis. Minimal competency must be achieved in use of the word processor, email, Excel spreadsheets, PowerPoint presentations and applications, and use of the Internet.

2. Faculty Development Outcomes:

- 2.1 Tenure track faculty with or actively working on terminal degrees will teach 100% of courses in the program.
- 2.2 Professionals from clinical settings in the region and program graduates are an important resource as guest speakers.
- 2.3 Tenure track faculty will maintain current knowledge in their areas of expertise by actively participating in scholarly activity and attending meetings of scholarly societies.

3. Curriculum Outcomes:

- 3.1 The MS Exercise Science program will conduct a continuous review of the curriculum based on the perception of students in the program and of its graduates. This information will be obtained through the use of:
 - ✓ Student evaluations for each course
 - ✓ Student evaluations of the program following each oral examination
 - ✓ Surveys sent to program graduates
 - ✓ Surveys sent to employers of program graduates
 - ✓ Surveys sent to internship site supervisors
- 3.2 The curriculum will be reviewed on an annual basis to consider changes in current opinion .
- 3.3 The curricula will be reviewed to determine the consistency of the program with standards of professional societies and accrediting agencies. Some of these professional groups are the American College of Sports Medicine, the American Association of Cardiovascular and Pulmonary Rehabilitation, American Diabetes Association, and The National Athletic Trainers Association.

4. Course Outcomes:

- 4.1 Student evaluations for each course.
- 4.2 Individual student conferences.
- 4.3 Class discussions of course objectives.

4.4 Oral examinations with carefully structured objectives.

III. IDENTIFY MEASUREMENT INSTRUMENTS:

1. Programmatic Instruments:

See the attached PROGRAM ASSESSMENT WORKSHEET.

2. Course Related Instruments include the current course syllabi.

IV. THE REVIEW PROCESS:

The review process is ongoing and findings with merit are implemented in the next course offering. Relevance to current opinion in the field and to accrediting agency requirements is considered on a regular basis. Examples are requirements for successful completion of American College of Sports Medicine certification for Certified Exercise Specialist and Certified Clinical Program Director. Other considerations are the professional certification of our Cardiac Rehabilitation Program by the American Association of Cardiovascular and Pulmonary Rehabilitation and the professional certification of our Diabetes Program by the American Diabetes Association. Publication of revised "Lipid Management Guidelines" by the Adult Treatment Panel III and the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure in the *Journal of the American Medical Association* required implementation in many courses. We also annually implement the Clinical Practice Recommendations of the *American Diabetes Association* in our courses and clinical programs. Students are expected to use these screening and case management guidelines in their classes, internships, the clinic and on-the-job.

V. DATA COLLECTION:

Data have been collected by telephone and personal interviews over the past year. Former students also call for consults concerning clinical procedures, program development, professional development, and when making career decisions. These discussions are especially valuable.

Occasionally former students now in professional settings return as guest speakers for various classes. Their presentations provide valuable insights to their career progress and professional career settings. We also have a variety of clinicians from the area as guest speakers.

VI. DATA ANALYSIS:

The data analysis is ongoing. The most recent formal data analysis was a five-year study completed in 2003 for the **Program Review**. The program was recognized at that time as a Marshall University Program of Academic Excellence.

VII. ACTION TAKEN:

The program and curricular content is revised on a regular basis. For example, a major revision was made in the Exercise Science section of the Graduate Catalogue this past year. Recent selected graduate and employer suggestions for Program Modifications/Improvements and the subsequent actions taken are listed in the Table below.

VIII. PLANS FOR THE COMING YEAR:

Three positions are being filled by one-year or three-year appointments. Two positions are unfilled due to resignation and retirement. Eight other tenure-line faculty are providing classes and advising to the best of their abilities.

We have four faculty searches ongoing as this is being written.

IX. ASSISTANCE NEEDED:

We need to fill the tenure-track faculty position with qualified candidates. We need extra funding to pay for the additional adjunct faculty members when required by the various accrediting agencies. While we are fortunate to have several young and well qualified faculty this division is undergoing very drastic changes and will need a lot of support as additional faculty leave for retirement or other employment.

**Graduates and Employer Suggestions
For Program Modifications/Improvements**

<p>Consider multiple internship rotations</p> <ul style="list-style-type: none">✓ Response: This opportunity is available for those students willing to put the time and effort into planning such an experience. We also have opportunities for clinical site visits unrelated to the internship. <p>Include more epidemiology in our classes.</p> <ul style="list-style-type: none">✓ Response: PE 682 includes a strong emphasis in this area, but each class has similar epidemiological and outcome applications. This has become a major emphasis area. <p>Final oral exam was extremely difficult to prepare for.</p> <ul style="list-style-type: none">✓ Response: We have made significant revisions in this area, including a restructuring of the examination that permits students to prepare in a more structured fashion for this important event in their program. <p>The Research Methods course could be improved.</p> <ul style="list-style-type: none">✓ Response: We have made significant changes in this course. They include more targeted involvement of the five disciplines and a more practical approach to research and the publication process. This includes guest speakers from the five disciplines in the division.
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VIII. ASSESSMENT OF STUDENT OUTCOMES [CHART I]

Chart I below provides a detailed summary of student outcomes and subsequent **Actions Taken**. An examination of **7. Technical Skills** demonstrates one application of our outcome assessment procedures. *Verification procedures [Assessment Tool]* for teaching students EKG monitoring skills utilizes dynamic scope traces, static traces, telemetry traces, and monitor summary reports with accompanying traces. A *Verification record [Standards/Benchmarks]* is maintained until an appropriate *Clinical skill level is achieved [Results/Analysis]*. When a student is considered qualified to monitor an EKG, they are given a *Clinical assignment [Action Taken]* as a staff member. This may include our periodic routine clinical monitoring schedule as well as monitoring to assess any clinical changes related to observed signs and symptoms.

Chart I Assessment Summary
Marshall University
Assessment of Student Outcomes: Component/Course/Program Level
Component Area/Program/Discipline: Exercise Science

Component / Course / Program Level					
Student Outcome	Person or Office Responsible	Assessment Tool or Approach	Standards/Benchmark	Results/Analysis	Action Taken
1. Admission Competencies	Program Director – Clinical Program Director - ATEP	UG – GPA Science background Consider GRE scores; interview; letters of rec.	3.00 GPA Full Admission UG Exercise Physiology UG Athletic Training UG Kinesiology	Annual and 5-year program growth and percent of graduates working <u>In Field</u> or <u>Allied Field</u> .	Establish more rigid entrance criteria and increase rigor of Exercise Science curriculum
2. Statistical Analysis	Course instructors, oral exam committee	EDF 517, 621, 625; PSY 623, 624; MGT 500, MKT 683	Successful completion of course work. Pass oral examination.	Course application; student performance on oral examinations.	Show students relevance in daily practice and patient outcome data management
3. Research Design	Course instructors, oral exam committee	ESS 670; HS 579	Successful completion of course work. Pass oral examination.	Number of student passing courses. Student performance on orals.	Program management: minimize variance and maintain quality control
4. Related Literature	Program Directors, advisors, course instructors, oral exam committee.	ESS 621, 670, 682, 683, 684, 685, 687, HS 579 student literature reviews; comprehensive oral examination.	Successful completion of course work, internship, thesis, and comprehensive oral examination.	Number of student passing courses. Student performance on oral examinations	Implement current medical opinion: ATP III, JNC VII; ADA Clinical Practice Guidelines & benchmarking
5. Clinical Skills	Program Directors, advisors, course instructors, oral exam committee.	ESS 601, 621, 683, 684, 687, COUN 577, 535, 540, internship, thesis; oral examination	Successful completion of course work, internship [site], or thesis. Pass comprehensive oral examination.	Performance in classes, internship & related tasks, quality of thesis, and oral examination.	Medical Profile Test Development & Case Management training; Cases assigned.
6. Best Practices	Program Directors, advisors, course instructors, oral exam committee.	All course work, internship, thesis, and oral exam; EKG and ACLS Courses at the Medical Center.	Successful completion of course work, internship [site], thesis, & pass comprehensive oral examination.	Performance criteria standards achieved in classes, internship, thesis, & oral examination.	Application of screening, risk stratification in DEC, CRP, CPMP, internship, thesis. ATEP clinical
7. Technical Skills	Program Directors, advisors, course instructors, oral exam committee.	ESS 601, 621, 683, 684, 687 internship, oral exam; EKG/ ACLS Courses.	Successful completion of course work and internship. Pass oral examination. Verification record.	Performance in classes, internships, and oral examinations. Clinical skill achieved.	EKG, BP, blood glucose, MSET, ACLS, patient management skills: clinical assignment.
8. Graduate satisfaction	Program Directors	Survey questionnaire; personal interview; network	Graduate satisfaction ratings from questionnaires/interviews.	Questionnaire and interview data	Revise program content, website, & guest speakers
9. Employer satisfaction	Program Directors	Survey questionnaire; personal interview; network	Employer satisfaction ratings from questionnaire/interviews.	Questionnaire data and interview data	Revise program content; website, & guest speakers.