

# BIOMECHANICS, M.S.

The School of Kinesiology offers a graduate degree in Biomechanics (M.S.). The Biomechanics degree program offers one area of emphasis: Sports Science.

Biomechanics is the study of forces and their effects on living systems. Biomechanics provides advanced knowledge in biomechanics particularly related to performance enhancement and injury prevention. Students focus their academic coursework on developing the ability to understand and apply the principles of biomechanics when serving as a movement analyst in competitive and recreational sport situations, as well as in the workplace. Popular career settings include hospital and patient movement analysis centers, athlete performance analysis, research/testing laboratories, and equipment development. This program also prepares students to enter schools for physician assistants, physicians, chiropractors, physical therapy and occupational therapy. Graduates from the M.S. in Biomechanics are also prepared to pursue studies for an advanced degree in related doctoral program.

The course of study for the M.S. in the Biomechanics degree and the Sports Science area of emphasis is a two-year program with a 36-hour requirement.

## Admission Requirements

Admission requirements are different for the degree programs. Provisional admission to a program is possible, and will be considered on an individual basis. (See definition of Provisional Admission in this catalog). Acceptance into the M.S. in Biomechanics program is competitive and not guaranteed.

Applicants should follow the admissions process described in this catalog or at the Graduate Admissions website at <https://www.marshall.edu/admissions/apply/#graduate>.

In addition (submit all materials directly to Graduate Admissions office):

### For Full Admission

- An undergraduate Grade Point Average (GPA) of 3.0 or higher on a 4.0 scale for all previously completed undergraduate university work;
- An appropriate undergraduate/graduate background that includes anatomy, physiology, kinesiology, physics, algebra/trigonometry;
- A scholarly writing sample;
- A personal statement describing the applicant's interest in the program at Marshall and how the experience will benefit them professionally and personally; and
- Three (3) letters of recommendation from individuals familiar with the applicant's relevant academic/professional performance as it relates to the successful completion of the program.

### For Provisional Admission

(a limited number of students may be admitted as provisional candidates)

- An undergraduate Grade Point Average (GPA) of 2.75 or higher on a 4.0 scale for all previously completed undergraduate university work;

- An appropriate undergraduate/graduate background that includes anatomy, physiology, kinesiology, physics, algebra/trigonometry;
- A scholarly writing sample;
- A personal statement describing the applicant's interest in the program at Marshall and how the experience will benefit them professionally and personally;
- Three (3) letters of recommendation from individuals familiar with the applicant's relevant academic/professional performance as it relates to the successful completion of the program.

Acceptance into the M.S. Biomechanics program is competitive and not guaranteed. To continue in the M.S. in Biomechanics program, students are required to maintain a 3.0 GPA in all coursework.

## Program Requirements

The M.S. in Biomechanics will consist of at least 36 post-baccalaureate credit hours that will be taken in a prescribed sequence to be developed by the student's graduate committee advisor. Students without a background in biomechanics will be advised to take additional foundation biomechanical courses.

## Thesis or Comprehensive Examination

The thesis project is a collaborative academic effort between the student and the faculty of the School of Kinesiology. The student can receive up to 6 credit hours toward his or her 36 credit hour degree requirement. The thesis project and oral defense of the student's thesis project must occur prior to the completion of the student's final semester in the program. The thesis project needs to reflect an effort that is at least equivalent to the 6 credit hours and is to be completed over 2 or more semesters.

As an alternative to a thesis project, a student can choose to take a written/oral comprehensive examination. The comprehensive examination will consist of responses to written and verbal questions that are prepared by select faculty members of the School of Kinesiology.

## Plan of Study

The Master of Science program consists of the following coursework:

Code	Title	Credit Hours
<b>Core</b>		<b>24</b>
ESS 670	Research Meth in Kinesiology	
STA 518	Biostatistics	
HS 535	Biomech Instrument MatLab	
HS 610	Adv Biomechanics	
HS 615	Kinematic Analysis App Biomech	
HS 635	Kinetics in Biomech	
HS 650	Human Gait	
HS 681	Thesis	
HS 578	Biomech Research Pract	

Advisor must approve electives and comprehensive examination.

<b>Electives</b>		<b>9</b>
Select 9 credit hours of the following:		
ESS 578	Exercise Metabolism	
ESS 601	Adv Exercise Testing	
ESS 621	Adv Exercise Physiology I	

ESS 636	Structural Kinesiology	
ESS 642	Devise Train & Cond Prog	
ESS 644	Cardio Exer Physiol	
ESS 645	Respir Exer Physiol	
<b>Total Credit Hours</b>		<b>33</b>

- Sports Science Area of Emphasis (<http://catalog.marshall.edu/graduate/programs-az/health-professions/biomechanics-ms/sports-science-area-emphasis/>)