BIOMEDICAL RESEARCH, M.S.

Program Description

The primary goal of the Biomedical Research (BMR) program is to use biomedical and translational research approaches to help reduce the numerous health disparities and improve the health of the population in West Virginia and central Appalachia. To do this, students will take an interdisciplinary approach with defined interests and special in-depth training in one of the following research areas of emphasis: Cardiovascular Disease; Cell Biology; Neurobiology and Addiction; Obesity and Related Diseases; Toxicology and Environmental Health; and Medical Sciences Research. These areas are designed to be flexible and research oriented in order to develop the interests, capabilities and potential of all students pursuing careers in academic, government, or industrial biomedical sciences.

In addition, the BMR program offers a non-thesis Master of Science option with a Medical Sciences area of emphasis to improve the science foundation of students seeking admission into doctoral programs in medicine or other health-related professions. Admission into the BMR M.S. Medical Sciences emphasis does not guarantee admission into medical school. Additionally, a research component to this area of emphasis is available, but not required. Students are expected to stay in good academic standing.

Admission Requirements

Applicants must meet the admission requirements of Marshall University Graduate Admissions - marshall.edu/admissions/graduate/ (http://marshall.edu/admissions/graduate/) - and the Biomedical Research program of the Marshall University Joan C. Edwards School of Medicine - https://jcesom.marshall.edu/research (https://jcesom.marshall.edu/research/). Interested persons should visit https://jcesom.marshall.edu/research (https://jcesom.marshall.edu/research/), e-mail mubiomed@marshall.edu and/or call 304-696-3365.

Biomedical Research, M.S. (Non-Thesis) Medical Sciences, and Medical Sciences Research Areas of Emphasis: Interested persons should visit https://jcesom.marshall.edu/students/ms-in-biomedical-research-with-medical-sciences-emphasis/, e-mail mubiomed@marshall.edu, (medicalsciences@marshall.edu) and/or call 304-696-3365.

Biomedical Research M.S. Applicants

Minimum Admission Requirements

- A baccalaureate degree from a regionally accredited college or university
- Successfully completed, with a grade of *C* or better, one year of general biology, physics, general chemistry, and organic chemistry, all with associated laboratories. A semester of biochemistry or molecular biology is also required.
- A recommended minimum Grade Point Average (GPA) of 3.0
- A recommended minimum GPA of 3.0 in combined science and math courses
- Official transcript(s) from undergraduate degree granting institution(s). Transcripts for post-baccalaureate or graduate coursework may be required at the discretion of the program.
- Program materials: three recommendations, program online form, written statement addressing educational and career goals, CV/resume

The GRE is not required; however, GRE scores can be submitted to strengthen your application. Applications are accepted on a rolling basis and are reviewed until the class is filled. Applications are only considered once we have received all required documentation.

Applications are accepted on a rolling basis and are reviewed until the class is filled. Applications will be considered after the priority deadline until June 30, if openings are available. International applicants should adhere to the deadlines set in place by the Office of International Admissions.

Biomedical Research, M.S. (Non-Thesis) Medical Sciences, or Medical Sciences Research Areas of Emphasis: Students are admitted in both the fall and spring terms. Applications are accepted on a rolling basis and are reviewed until the class is filled. The application deadline for fall admission is June 30. The application deadline for spring admission is December 1. International applicants should adhere to the deadlines set by the Office of Admissions.

Conditional Admission

The Biomedical Research M.S. program may admit applicants conditionally, for one term, pending receipt of final, official bachelor's degree transcript with degree awarded.

Duration of Degree Program

Students are expected to complete the degree within two years. This includes the summer between years one and two for M.S. (thesis) students.

Program Requirements

Degree Requirements

All students are required to meet the general requirements of the university for receipt of a master's degree. To remain in good academic standing and to graduate, the student must have a minimum graduate GPA of 3.0.

In addition, after 12 hours of coursework has been completed, the student must submit an M.S. Plan of Study form to the College.

Thesis Option

A minimum of 32 credit hours is required for the thesis option with no more than six hours of thesis (BMR 681 Thesis) credited toward the 32 credit hour requirement. Each student will specialize in one of the six areas of emphasis:

- Cardiovascular Disease
- Cell Biology
- Medical Sciences Research
- Neurobiology and Addiction
- Obesity and Related Diseases
- Toxicology and Environmental Health

Advisory Committee for M.S. (Thesis) Students

The advisory committee should be formed no later than the end of the first year of graduate education. As soon as the committee

has been identified, a Thesis Committee Formation form is completed and submitted to the Director of Graduate Studies.

The advisory committee will be selected by the student and research advisor, with approval from the Director of Graduate Studies required. The committee will be composed of at least three faculty members with appropriate expertise; one of the members may be from another institution. The student's research advisor will act as the chairperson of the committee.

Non-Thesis Option (Medical Sciences, or Medical Sciences Research, Area of Emphasis)

A minimum of 36 credit hours is required for the non-thesis degree. In addition, the student must pass a written comprehensive examination covering their courses.

Plan Of Study (Thesis option)

All thesis option students are required to successfully complete the following core curriculum. The Thesis option requires a minimum of 32 credit hours.

Code	Title	Credit Hours
Core Curriculum		
BMR 601	Intro DNA, RNA & Protiens	3
BMR 602	Intro Cells and Metabolism	3
BMR 603	Regulation Cell Function	2
BMR 604	Cell Basis of Disease	1
BMR 617	BMR Statistics Technique	3
BMR 644	Research Conduct	1
BMR 660	Communication Bio Sci I	1
or BMR 661	Communication Bio Sci II	
BMR 680	Seminar (minimum of 4 hours)	4
BMR 785	Intro to Research	4
Total Credit Hours		**22**

In addition, the student must successfully complete other courses required by his/her area of emphasis and advisory committee.

Plan of Study (Non-Thesis Option, Medical Sciences or Medical Sciences Research Areas of Emphasis)

Code	Title	Credit Hours
Core Curriculum		
BMR 601	Intro DNA, RNA & Protiens	3
BMR 602	Intro Cells and Metabolism	3
BMR 603	Regulation Cell Function	2
BMR 604	Cell Basis of Disease	1
BMR 785	Intro to Research	3
BMS 605	Micro Pharm Med Sciences	5
Total Credit Hours		**17**

Code	Title	Credit Hours
Medical Sciences Area of Emphasis		
ACB 622	Gross Anat/Embryology II	6
BMS 634	Biostat Epidem Med Sci	2
PHS 629	Mammalian Physiology	6
PMC 621	Medical Pharmacology I	6
PMC 622	Medical Pharmacology II	2
Electives 0-12 BMR, BMS, CTS, PHS, PMC PHS with Advisor approval		0-12
Total Credit Hours		**22-34**

Code	Title	Credit Hours
Medical Sciences Research Area of Emphasis		
PHS 667	Experimental Appr to Phys	4
CTS 600	Epi Used in Med Research	3
BMR 882	Research (2-4 Credits per semester)	9
CTS 630	Fundamentals of Team Science	2
BMR 644	Research Conduct	1
Electives 0-12 hours BMR, BMS, CTS, PMC, PHS, ACB with Advisor approval		0-12
Total Credit Hours		**19-31**

Students in the Medical Sciences, and Medical Sciences Research Areas of Emphasis must pass the comprehensive final examination.