

BIOMEDICAL RESEARCH, PH.D.

Program Description

The Biomedical Sciences and Clinical and Translational Sciences departments of the Joan C. Edwards School of Medicine offer the following degrees: Doctor of Philosophy (Ph.D.), M.D./Ph.D., and Master of Science (M.S.), both thesis and non-thesis.

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; Obesity and Related Diseases; Neurobiology and Addiction; and Toxicology and Environmental Health. 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 degree 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 program does not guarantee admission into medical school. Additionally, a research component to this area of emphasis is available, but not required. Students choosing the research component may work up to 19 hours per week while earning a minimum of \$10/hour. Students are expected to stay in good academic standing.

Biomedical Research, Ph.D.

The doctorate is a research or performance degree and does not depend solely on the accumulation of credit hours. The degree requirements are admission to candidacy, and successful completion and defense of a dissertation. The degree signifies that the holder has the competence to function independently at the highest professional level.

Admission Requirements

Applicants must meet the admission requirements of both 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/>). Applicants are directed to apply through the Biomedical Sciences Centralized Application System (BioMedCAS, <https://biomedcas.liaisoncas.org/>). Completion of a secondary application once admitted is also required; instructions will be sent from the department to the applicant. 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 Ph.D. Applicants

Minimum Admission Requirements

- A baccalaureate degree from a regionally accredited college or university
- Successful completion, with a grade of C or better, of one year each 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 degree-granting institution/s; other transcripts may be required
- Departmental 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 will be considered until June 30, if openings are available. International applicants should adhere to the deadlines set in place by the Office of International Admissions. The Biomedical Research Ph.D. program is highly competitive; thus, early applications provide the best chance for acceptance.

Conditional Admission

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

Duration of Degree Program

Doctoral degree students are expected to complete the requirements within five years. Students who possess an M.S. degree in Biomedical Research or the equivalent when admitted into the doctoral degree program generally require three to four years to complete the Doctor of Philosophy degree.

Entry Term

BMR Ph.D. students will matriculate in July (summer III term). The first week will be devoted to orientation and Preparation for Graduate Academics (PGA) Boot Camp. This allows students to learn more about research opportunities, get to know their cohort and current students, acclimate to a new environment, and get a head start on their research rotations.

Program Requirements

Before graduating, students are required to write and publish three peer-reviewed manuscripts, two of which must be as first author.

To remain in good academic standing and to graduate, the student must have a minimum graduate GPA of 3.0.

Plan of Study

To qualify for the Doctor of Philosophy degree, the student must pass (C or better or CR) the following courses:

Code	Title	Credit Hours
BSC 640	Cell Bio & Biotechnology	3
BMR 617	BMR Statistics Technique	3
BMR 644	Research Conduct	1
BMR 660/661	Communication Bio Sci I	1
BMR 661	Communication Bio Sci II	1
PHS 667	Experimental Appr to Phys	4
BMR 680	Seminar (minimum of 6 hrs.)	6
BMR 785	Intro to Research	3
BMR 882	Research	30-90
Cluster and committee requirements		6-15
Total Credit Hours		58-127

Students may substitute the combination BMR 601, BMR 602, BMR 603, and BMR 604 to replace BSC 640.

The clusters each have their own core requirements that must be fulfilled. Also, each committee may decide that the students should take a particular elective class. The committee's requirements will be outlined as part of the plan of study and can include any graduate level course with the following department designations: ACB, BMR, BMS, BSC, CTS, MCB, PMC, PHS. Courses from other departments will require approval by the Office of Research and Graduate Education.

In addition, the student must successfully complete other courses required by his/her/their area of emphasis and advisory committee. All courses will be defined in the student's Ph.D. Course of Study form. The student must also pass a written and oral exam prior to becoming a Ph.D. candidate. These exams are set by the student's graduate committee.

- Cardiovascular Disease (<http://catalog.marshall.edu/graduate/programs-az/medicine/biomedical-research-phd/cardiovascular-disease/>)
- Cell Biology (<http://catalog.marshall.edu/graduate/programs-az/medicine/biomedical-research-phd/cell-biology/>)
- Neurobiology and Addiction (<http://catalog.marshall.edu/graduate/programs-az/medicine/biomedical-research-phd/neurobiology-addiction/>)
- Obesity and Related Diseases (<http://catalog.marshall.edu/graduate/programs-az/medicine/biomedical-research-phd/obesity-related-diseases/>)
- Toxicology and Environmental Health Sciences (<http://catalog.marshall.edu/graduate/programs-az/medicine/biomedical-research-phd/toxicology-environmental-health-sciences/>)