

MASTER OF SCIENCE IN BIOMEDICAL SCIENCES DUAL DEGREE

The Master of Biomedical Sciences (M.S.B.S) program provides formal, research-intensive experiences for clinical students with a strong interest in advancing their research skills. The emphasis for dual degree students is on training clinician-researchers to develop a proven track record of research, proficiency in assessing scientific literature, enhanced communication skills, improved critical thinking abilities and experience in delivering presentations and publishing research.

Dual Degree Option 1 - D.O. Students

Students currently accepted into the Doctor of Osteopathic Medicine (D.O.) program can apply to the M.S.B.S program and begin their research projects in the summer prior to matriculation into their clinical program. The curriculum for dual degree students is designed to be completed within the four years of the D.O. program. Research is integrated into the didactic and clinical years of their D.O. degree, culminating in a four- to six-week research experience in their fourth year.

Dual Degree Option 2 - D.O. and D.P.M. Students

Students currently enrolled in the D.O., or Doctor of Podiatric Medicine (D.P.M.) programs can apply to the M.S.B.S. program and select the track with thesis. Students apply during the first year of their clinical program, with M.S.B.S.-specific coursework starting the following fall. After the second year of their clinical program, dual degree students spend a year to complete their research project and thesis before moving on to their clinical clerkships. The curriculum for dual degree students on the thesis track is designed to be completed within five years. The selection of a track with thesis enhances the students' research experience through their involvement in the planning of methodologically rigorous and scientifically sound studies. This track supports the clinician-researchers in gaining an in-depth understanding of their subject matter.

Mission

To educate diverse groups of highly competent and collaborative biomedical scientists who will address problems of human health through basic and clinical research.

Vision

The Master of Sciences in Biomedical Sciences Program will cultivate exceptional student researchers who discover and disseminate new knowledge, contributing to the advancement of the prevention and treatment of human diseases.

PROGRAM REQUIREMENTS

To be considered for admission, applicants must either currently be accepted into the Doctor of Osteopathic Medicine (**Dual Degree Option 1**) program or be enrolled in the Doctor of Osteopathic Medicine or Doctor of Podiatric Medicine programs (**Dual Degree Option 2**) at DMU.

Applicants must have completed the required coursework outlined below. The minimum grades recommended for application are a 2.8 cumulative GPA and a 2.8 science GPA on a 4.0 scale, and at least a "C" in each of the following prerequisite areas:

Program Coursework Requirements

Subject Required Course(s) or Term Hours

Biology/Zoology	8 semester hours, with lab
General Chemistry	8 semester hours, with lab
Organic Chemistry	4 semester hours, with lab
Biochemistry	3 semester hours
Physics	8 semester hours, with lab (may substitute 3 semester hours of Statistics)
English: Comp/Literature/Speech	6 semester hours

Other recommended coursework includes cell biology, microbiology, immunology, physiology, and anatomy. Additional information can be found on the M.S.B.S. Program Admissions Requirements website.

PROGRAM APPLICATION PROCESS

Application to the M.S.B.S. dual degree program is accepted directly through the DMU [Direct Application](#).

Detailed information regarding the timing of application and enrollment can be found on the dual degree [website](#). Applicants must provide the following materials:

- [Dual degree application](#)
- Personal statement of one to three pages describing interest in a dual degree in biomedical sciences.
- Letters of Recommendation:
 - Incoming D.O. students – three letters of recommendation that can be utilized from the clinical degree application.
 - Current D.O./D.P.M. students – two letters of recommendation (one from DMU advisor and one from an additional faculty member who has had the student in class) who can discuss the potential to succeed in the M.S.B.S. program. Upon request, one letter can be used from the clinical program application.
- Transcripts will be accessed from the clinical application and DMU Registrar's Office (if applicable).

CURRICULUM OVERVIEW AND OUTLINE

The curriculum is designed to offer diverse research opportunities in the specialties of biochemistry, microbiology, physiology, pharmacology, and pathology, with research areas that include cancer, immunology, cardiovascular sciences, and neurosciences. Throughout the program students benefit from a collaborative learning experience and supportive working relationships with peers and with faculty dedicated to their success.

The curriculum for dual degree students is designed to be completed within the four years of the D.O. program. Dual degree students (D.O. or D.P.M.) on the thesis track can complete the requirements for the M.S. degree with one additional year added to their clinical program.

Students are required to complete a total of 25.5 program specific credit hours for the **Dual Degree Option 1** and 34.0 program specific credit hours for the **Dual Degree Option 2** (which includes additional credit hours of thesis). Detailed information regarding the curriculum outline can be found on the dual degree [website](#).

Prerequisite: Foundational Sciences I (fulfills prerequisite for Biochemistry/Molecular Genetics course), and Med Informatics & Translational Learning (fulfills prerequisite for Responsible Conduct in Biomedical Research course).

Advanced Standing: Foundational Sciences II, Foundational Sciences III, Mentored Research Experience and Research Elective Rotation courses.

PROGRAM OBJECTIVES

1. Apply core biomedical science concepts to coursework and to the analysis of research questions, experimental approaches, and data across biomedical contexts.
2. Critically evaluate and interpret biomedical research findings to inform scientific understanding and draw evidence-based conclusions.
3. Communicate scientific information effectively in written and oral formats for both specialized and general audiences.
4. Model appropriate standards of professionalism, integrity and ethical responsibility in biomedical research and scholarly activities.
5. Cultivate effective collaboration with colleagues, advisors, and the broader research community to promote cooperative learning and scholarly development.
6. Students in the thesis track will additionally: design, conduct, analyze, and present an original biomedical research project that contributes new knowledge to the biomedical sciences.

CONTINUOUS QUALITY IMPROVEMENT

The COM is committed to delivering high-quality academic programming to ensure the academic and professional success of its students. Assessment and evaluation are crucial steps in the educational process that are carefully aligned with student learning objectives and instructional activities. Formative and summative assessment methods vary in format – i.e., written tests, performance assessments (research and thesis), focused assignments (case reports, projects, self-reflection) and portfolios, among others. Student assessment results are incorporated into the COM planning process on a regular basis to support continual improvement in programs and services to students.

TECHNICAL STANDARDS FOR ADMISSION, ACADEMIC PROMOTION AND GRADUATION

Students must meet both technical standards for both the primary program and the [Master of Science in Biomedical Sciences program](#).

Required Courses

Dual enrolled students are required to meet all course requirements of both their primary degree program and the [MSBS Non-Thesis Track](#) program or [MSBS Thesis Track program](#).

GRADUATION REQUIREMENTS

Dual enrolled students are required to meet all graduation requirements of both their primary degree program and the [MSBS Non-Thesis Track](#) program or [MSBS Thesis Track program](#).