

# ENGINEERING SCIENCE AND MECHANICS

## Joint Degrees

### Joint M.D./Ph.D. with the College of Medicine

Requirements listed here are in addition to requirements listed in GCAC-211 Joint Degree Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-211-joint-degree-programs/>).

#### Admission Requirements

All students must process an application via the American Medical College Application Service and be accepted for admission by the M.D./Ph.D. admissions committee. Admission to the program requires a minimum GPA of 3.5 and a Medical College Admission Test (MCAT) score of 32. Exceptions to the minimum requirements may be made at the discretion of the program for students with special backgrounds, abilities, and interests. Applicants will be accepted up to the number of places available for new students. Students must successfully complete Years M1 and M2 and Step 1 of the United States Medical Licensing Examination (USMLE) before entering the graduate degree program. All requirements for the Ph.D. degree must be completed prior to Year M3 of medical studies.

Students must apply to the Graduate School (<http://www.gradschool.psu.edu/prospective-students/how-to-apply/>) for admission to the graduate program. Applicants holding undergraduate degrees in engineering, the mathematical sciences, mathematics, engineering science, and materials science and engineering who present a minimum 3.5 grade-point average will be considered for admission. Exceptions to the minimum 3.5 grade-point average may be made at the discretion of the program for students with special backgrounds, abilities, and interests. Applicants will be accepted up to the number of places available for new students.

All program-specific documents for admission (e.g., transcripts, letters of recommendation, etc.) must be submitted by all applicants.

#### Degree Requirements

The Joint M.D./Ph.D. Program in Engineering Science and Mechanics (M.D./Ph.D., ESMCH) will form the basis for an interdisciplinary, transformational program that will educate a new generation of Physician Engineering Scientists, working at the frontiers of clinical and translational research. This Joint Degree Program responds to the national call to expedite the incorporation of clinical and translational research into improved healthcare.

Students in the Joint M.D./Ph.D. Program in Engineering Science and Mechanics will complete 4 years of medical studies (designated years M1 through M4) at the Medical School, College of Medicine, and 3 or more years of Graduate Study (designated years G1 through G3 or GX) in the Engineering Science and Mechanics (ESM) Department.

Joint M.D./Ph.D. candidates should apply to the Ph.D. program in Engineering Science and Mechanics in M2. After successfully completing the first 2 years of medical school, including all required rotations and Step 1 of the United States Medical Licensing Examination (USMLE), the candidate will be admitted to the Ph.D. program in Engineering Science and Mechanics.

Students will complete all degree requirements for the Ph.D. Degree in Engineering Science and Mechanics, including SARI (Scholarship and

Research Integrity) training for the Responsible Conduct of Research (RCR) that must be met by students admitted to the program with either a baccalaureate or a master's degree, with the following exceptions:

- if students accepted into the joint degree program are unable to complete the M.D. degree, they are still eligible to receive the Ph.D. degree if all Ph.D. requirements have been satisfied;
- students admitted to the program with a baccalaureate degree will be allowed to double count 9 professional credits toward graduate course credit for the Ph.D. degree; and,
- students admitted to the program with a master's degree will be allowed to double count 7 professional credits toward graduate course credit for the Ph.D. degree.

Students will complete all requirements for the M.D. Degree that must be met by students admitted to the program with either a baccalaureate or master's degree, with the following exceptions:

- baccalaureate degree holders will be allowed to double count 10 research credits (ESC 600/EMCH 610) toward professional credits for the M.D. degree; and,
- master's degree holders will be allowed to double count 5 research credits (ESC 600/EMCH 610) applied to the Ph.D. ESMCH degree toward professional credits for the M.D. degree.

Students may take the qualifying examination after completing 18 credits of approved graduate course work.

- master's degree holders accepted into the Joint M.D./Ph.D. program may take the qualifying examination in the Spring Semester of Year G1, but no later than the Fall Semester of G2.
- baccalaureate degree holders accepted into the Joint M.D./Ph.D. program may take the qualifying examination within 3 semesters of entry into the Ph.D. program (expected to be the Fall Semester of G2).

Following completion of the Ph.D. dissertation, students will return to medical school to complete Years M3 and M4 of the professional M.D. degree.