

Graduate Programs

NEW PROGRAM!

Ph.D. in the Science of Advanced Materials

The College of Science and Technology is extremely pleased to announce that the university has approved the creation of a new Ph.D. program in the Science of Advanced Materials (SAM) at CMU.

The Ph.D. program in the Science of Advanced Materials builds on successful research programs of faculty from several departments in the College of Science and Technology (CST) to provide students with a strong, interdisciplinary foundation in the science of advanced materials, with training in current techniques for the predictive modeling of new materials, their synthesis, and their characterization. It addresses a growing need in Michigan and across the U.S. for workers with training in advanced materials research.

Students will develop a specialization in one or more areas through advanced coursework and by conducting original research leading to a doctoral dissertation. A vibrant materials research community located in mid-Michigan, featuring major corporate research and development labs at Dow and Dow-Corning, the Michigan Molecular Institute, and high-tech start-up companies in the CMU research park (Dendritic Nanotechnologies and Artificial Cell Technologies), creates a unique niche at CMU, where students in the SAM Ph.D. program will benefit from scientific interactions with members of the community.

Graduate studies

Students entering the College of Science and Technology graduate programs benefit from excellent research facilities, small class sizes, and close mentoring relationships with their graduate advisors. The very low student-faculty ratio allows CMU science and technology faculty to provide the kind of individualized attention that would be difficult to receive at a larger school.

Most departments offer advanced curricula that lead to master's degrees through [CMU's College of Graduate Studies](#).

All academic program requirements are listed in [CMU's online bulletins](#).

Ph.D., Science of Advanced Materials

The College of Science and Technology is extremely pleased to announce that the university has approved the creation of a new **Ph.D. program in the Science of Advanced Materials (SAM)** at CMU. This new program builds on successful research programs of faculty from several departments in the college, to provide students with a strong, interdisciplinary foundation in the science of advanced materials, with training in current techniques for the predictive modeling of new materials, their synthesis, and their characterization. Program graduates are expected to find employment in industry, government laboratories or academia. A majority are expected to work in companies developing new materials for commercial and/or technological applications, including transportation, polymer-based materials and alternative energy industries.

Biology

The Department of Biology offers a **master of science degree** with emphasis in aquatic biology, ecology, behavior and behavioral ecology, physiology, microbial ecology, molecular biology, or immunology. The department offers outstanding opportunities for graduate research. Faculty experts provide the foundation for this graduate program by combining their enthusiasm and expertise with their interest in training the next generation of biologists.

Chemistry

The Department of Chemistry offers programs leading to the **master of science degree** and the **master of arts degree**. The M.S. is a research degree with specializations in biochemistry and analytical, inorganic, organic, organometallic, physical, or polymer chemistry. The M.A. degree includes an emphasis in teaching high school and college chemistry.

Computer Science

The Department of Computer Science offers a **master of science** degree that prepares graduates for advanced entry into professional careers or for continuing study in a doctoral program. Graduate study is available in the areas of artificial intelligence and knowledge-based systems, database systems, algorithms, networking, parallel and distributed computing, compilers and programming languages, pattern recognition and image processing, software engineering, data mining, multimedia, and graphics.

Geography

The Department of Geography offers a **master of science in geographic information science (GIS)**. Students gain a solid foundation in cartography, GIS, and remote sensing. Topics covered in the program include: GIS application development, geographic visualization and animation, spatial database management, Web mapping, and advanced digital image analysis.

Engineering and Technology

The Department of Engineering and Technology offers a **master of arts in industrial management and technology**, providing graduate training in industrial supervision, industrial management, industrial production, and industrial technology. The **master of arts in industrial education** degree is designed to enhance the professional development of teachers, consultants, and supervisors who are involved in preparing youth for employment.

Mathematics

Graduate Certificate Program in Data Mining

As of Fall 2007, the Department of Mathematics now offers a **graduate certificate program in data mining (GCPDM)**. This one-year program is designed to give students a comprehensive training in basic foundation, advanced knowledge, and applications of data mining.

Master's degree programs

The Department of Mathematics offers two master's degrees and a Ph.D. degree. The **master of arts degree** can be structured to prepare students for careers in business, industry, and government or for doctoral studies in mathematics. The **master of arts in teaching** is designed for secondary school teachers who want to enhance their instructional skills and mathematics background.

Ph.D. program

The department's **doctoral program** develops mathematics competency in pure or applied fields and also prepares graduates for college teaching. The dissertation entails original scholarly, analytical, creative, and expository work on a topic in pure mathematics, applied mathematics, statistics, or mathematics education.

Physics

The Department of Physics offers the **master of science degree** in physics for students who are interested in careers in business, industry, and government as well as for those preparing to teach physics or astronomy at the undergraduate level. The program provides excellent preparation for continued doctoral work in physics or astronomy. Valuable collaborative research efforts exist with other CMU departments, local industries, and research centers at other universities.