

# MATERIALS SCIENCE AND ENGINEERING

## A. James Clark School of Engineering

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Materials Science and Engineering (MSE, MatSci) is a multidisciplinary field focused on developing and characterizing materials and materials systems that provide the underpinnings for advancing technology and science into the future. The development of many major advances in science and technology has been predicated on advances the underlying materials systems. MSE is leading the effort in continuing this growth for the benefit of society.

## PROGRAMS

### Major

- Materials Science and Engineering Major (<https://academiccatalog.umd.edu/undergraduate/colleges-schools/engineering/materials-science-engineering/materials-science-engineering-major/>)

## ADVISING

Students choosing Materials Science and Engineering as their major should contact Adaire Parker, Program Director, Room 1111, Chemical and Nuclear Engineering Building, at 301-405-5989 or [mseundergrad@umd.edu](mailto:mseundergrad@umd.edu). Adaire Parker can direct students to their advisor. Faculty advisors include Professors Lloyd, Al-Sheikhly, Cumings, Martinez-Miranda, Mo, Salamanca-Riba, and Takeuchi. Any questions about the program should be directed to [mseundergrad@umd.edu](mailto:mseundergrad@umd.edu).

## OPPORTUNITIES

### Undergraduate Research Experiences

The department strongly supports undergraduate students who wish to pursue research opportunities. The student should discuss their interest with their advisor or with Adaire Parker (Program Director) or Professor Isabel Lloyd (Undergraduate Program Director). See <http://mse.umd.edu/research/>.

### Internships

The department strongly encourages students to pursue internships as part of their undergraduate experience. They should discuss an internship with their advisor as they develop their academic plan. The department will forward information about internships to our undergraduate students. Students may also receive information on internships from the Clark School's Engineering Career Services Office. See <http://eng.umd.edu/careers/>.

### Co-op Programs

The Materials Science and Engineering program works with the A. James Clark School of Engineering Co-op Program. For more information, students should speak with their advisor regarding their interest in a co-

op experience and consult the college's web page at <http://eng.umd.edu/careers/students/internships/>.

## Student Societies and Professional Organizations

### Undergraduate Societies

The Materials Engineering Society, or MatES, is a student society primarily for Materials Science and Engineering majors at the University of Maryland College Park. MatES is the University of Maryland's Material Advantage Student Chapter. It includes recognition by several professional societies including ASM International, The Minerals, Metals, and Materials Society (TMS), the American Ceramic Society (ACerS) and the Association for Iron and Steel (AIST). More information is available at <http://mse.umd.edu/undergraduate/current-students/student-groups/>.

### Materials Research Society (MRS)

The Materials Research Society (MRS), a professional research society for the field, has a student chapter in the department. The chapter organizes student research presentations, invites prospective employers for discussions, and collectively provides a forum for student-faculty interactions. More information is available by contacting Professor Salamanca-Riba at [riba@umd.edu](mailto:riba@umd.edu).

### Alpha Sigma Mu

Alpha Sigma Mu is the International Professional Honor Society for Materials Science and Engineering. Students with outstanding scholarship are nominated for membership and are eligible to be nominated for scholarships. If you have any questions, contact Professor Ray Phaneuf at [phaneuf@umd.edu](mailto:phaneuf@umd.edu).

## Scholarships and Financial Assistance

The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: <http://financialaid.umd.edu>.

Other scholarships are available through the A. James Clark School of Engineering's office of Undergraduate Recruitment and Scholarships Programs (<https://eng.umd.edu/scholarships/>). There are also research internships available for students to work with faculty in the department.

## Awards and Recognition

Each year, the department selects outstanding students for the following awards:

- Chair's Outstanding Senior Award
- Outstanding Materials Student Service and Advocacy Award
- Materials Science and Engineering Student Research Award

The professional materials oriented societies sponsor awards to recognize outstanding scholarship and undergraduate research.

- ASM International (<http://www.asminternational.org>)
- The Minerals, Metals, and Materials Society (TMS) (<http://www.tms.org/TMSHome.html>)
- American Ceramic Society (ACerS) (<http://www.ceramics.org>)
- Materials Research Society (MRS) (<http://www.mrs.org>)

All students enrolled in the Materials Science and Engineering program are encouraged to work with their advisor who in their junior and senior years will guide them towards nomination for these awards.

## Academic Programs and Departmental Facilities

The department's research facilities are available to undergraduates interested in pursuing research opportunities. Interested undergraduates are encouraged to work with a faculty member and their research team. Specific information on the facilities is available on the website: <http://mse.umd.edu/research/labs/>.

A partial list of facilities available to the students in the department include:

- The George E. Dieter, Jr. Materials Instructional Laboratory (<http://www.memil.umd.edu>)
- The Keck Laboratory for Combinatorial Nanosynthesis and Multiscale Characterization (<http://www.nanocenter.umd.edu/labs/Keck/>)
- Advanced Imaging and Microscopy Laboratory (AIMLab) (<https://www.nanocenter.umd.edu/aimlab/>)
- Laboratory for Advanced Materials Processing (LAMP) (<http://www.mse.umd.edu/LAMP/>)
- Laboratory for Plasma Processing of Materials
- Functional Macromolecular Laboratory (<http://fml.umd.edu>)
- The FabLab Micro and Nano Fabrication Laboratory run by the University of Maryland NanoCenter (<https://nanocenter.umd.edu/fablab/>)