MATERIALS SCIENCE, M.S.

The requirements for the M.S. in Materials Science have been merged with Materials Engineering. See “Materials Science & Engineering”. Admission to the program has been suspended. The information that appears in this entry is provided for the benefit of students currently admitted to the program.

Administrative Unit: Material Sciences Program
College/School: College of Engineering
Admitting Plans: M.S., Ph.D.
Degrees Offered: M.S., M.Eng., Ph.D.
Minors and Certificates: Doctoral Minor

OVERVIEW

Society’s demand for a rapid and diverse succession of new, specialized materials requires a flexible and interdisciplinary approach to materials research and education. In the past, specialized materials were developed through a trial-and-error process. Today, the tools and expertise of scientists are being combined with those of engineers resulting in productive cooperation in both applied and theoretical areas.

Our search for new materials and the need to make better use of old ones continues to broaden the field of materials science. Creating the next generation of advanced materials—polymers, ceramics, metals, semiconductors or biomaterials—and advanced devices—such as lasers, micromotors, nanoscale technology or engineered tissues—requires a mastery of materials and interfaces with atomic to macroscopic level understanding. This is the challenging and exciting domain of materials science.

The Materials Science Program at UW–Madison is nationally recognized and is committed to providing leadership in research, education and outreach services. Graduate studies in our program at UW–Madison can lead to the M.S. and Ph.D. degrees in materials science.

The Materials Science Program provides excellent opportunities for interdisciplinary research through its faculty advisory committee made up of many faculty from departments throughout the UW–Madison campus. Represented in the MSP are virtually all of the engineering departments, as well as chemistry, physics, geology, human ecology, biological systems engineering, as well as several of the biological and medical sciences. Graduate students select their thesis research topics based on materials and interfaces that involve polymers, superconductors, semiconductors, advanced metals, composites, biological materials, or ceramics. Degree requirements are extremely flexible, permitting the student and advisors to formulate an educational plan that is optimal for the student’s educational and professional objectives.

The Materials Science Center (MSC) has state-of-the-art electron microscopes, X-ray diffractometers, atomic force microscopes, surface analysis equipment, and advanced light microscopes available for hands-on use by materials science students. Augmenting the Center’s capabilities is an impressive array of dedicated campus facilities, including the Synchrotron Radiation Center, and the Wisconsin Center for Applied Microelectronics. Kurt F. Wendt Library houses a comprehensive collection of reference material in engineering and the physical sciences. The MSC and MSP offices are located on the engineering campus, near Union South, a student center with a snack bar, cafeteria, and social, game, and activity areas.

A weekly seminar program provides students with an opportunity to hear and meet outstanding materials scientists and engineers from around the world.

Research assistantships generally are available to qualified applicants. Opportunities to obtain teaching assistantships are available directly with the departments of our faculty and not through the Materials Science Program office. Exceptionally well-qualified applicants are eligible for graduate fellowships.

REQUIREMENTS

MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (http://guide.wisc.edu/graduate/#policiesandrequirementstext) in addition to the requirements of the program.

MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

30 credits

MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

16 credits

MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

At least 15 of the required 30 credits must be in courses designed for graduate work, which may include graduate-level math (EP 547), any courses taken at the 700 level or above (including classroom courses and master’s research, thesis, and seminar courses), and those courses that have been identified as graduate level by the courses’ subject owner. All courses must be approved by advisor and the MSP and must be relevant to the student’s scientific/engineering goals.

PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count up to two graduate courses from other institutions toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more years prior to admission to a master’s degree is not allowed to satisfy requirements.

PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

When rigorous and consistent with expectations of graduate work, up to 7 credits numbered 300 and above may be counted toward the minimum graduate degree credit requirement; if those courses are numbered 700 or above, they may be counted toward the minimum graduate coursework (50%) requirement. No credits can be counted toward the minimum graduate residence credit requirement. Coursework earned five or more
两年期前三年内期进入研究生学位的课程不得用于满足要求。

**PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL**

与项目批准和支付的差额在学费（包括特别和研究生学费）中，学生允许计数15学分的课程作为在UW–Madisonpecial学生编号300或更高，达到最低研究生居留信用要求和最低研究生学分信用要求；如果该课程编号为700或更高，它可能计数为最低研究生课程（50%）的学分。课程完成5或更多年期前期进入硕士学位的课程不得允许计数为硕士学位要求。

**CREDITS PER TERM ALLOWED**

15 credits

**PROGRAM-SPECIFIC COURSES REQUIRED**

联系程序以获取任何额外所需课程的信息。

**DOCTORAL MINOR/BREADTH REQUIREMENTS**

所有博士生都必须完成一个辅修。

**OVERALL GRADUATE GPA REQUIREMENT**

3.00 GPA required

**OTHER GRADE REQUIREMENTS**

研究生院要求平均GPA B或更高在所有研究生课程（300或更高，不包括研究学分）计数作为研究生学生除非条件为逗留状态要求更高学分。在学分需要被考虑为不满足如果他们没有在下一个被记录学分。

**PROBATION POLICY**

研究生院定期审查任何学生的记录，该学生在研究生课程（300或更高，不包括研究学分）中获得BC、C、D、F或不完成的学分。这一审查可能会导致在学业豁免和下期入学或在被研究生院。

**ADVISOR / COMMITTEE**

每位研究生都必须有一位导师。为了确保学生能够取得满足学位的进展，研究生院希望他们与导师保持定期联系。

一位导师通常作为论文导师。在许多情况下，一位导师被指派给在读研究生。学生可以被研究生院开除如果他们不有一位导师。一位导师或是一个委员会，来自主要部门，负责提供有关研究生学习的建议。

一个委员会经常负责为学生的早期阶段提供建议。

**ASSESSMENTS AND EXAMINATIONS**

联系程序以获取所需评估和考试的信息。

**TIME CONSTRAINTS**

硕士学位学生如果缺席五期或更长时间，他们的学分将被取消。个别程序可以将学分计算为满足程序要求；如果该课程编号为700或更高，它可能计数为最低研究生课程（50%）的学分。课程完成5或更多年期前期进入硕士学位的课程不得允许计数为硕士学位要求。

**LANGUAGE REQUIREMENTS**

联系程序以获取任何语言要求的信息。

**ADMISSIONS**

材料科学项目（MSP）的入学资格是由项目入学委员会根据申请人的学术记录、研究生入学考试（GRE）分数、托福或雅思（如果适用）、推荐信和个人陈述来判断的。入学竞争。申请人通常需要有一个不低于学位及工程学的课程，以及在数学中涉及的不同比例的方程，其中至少一年物理或化学，以及一个物理或化学课程。

**For more information:** Diana Rhoads, 1509 University Avenue #276, Madison, WI 53706; 608-263-1795; matsciad@engr.wisc.edu; www.engr.wisc.edu/interd/msp.

**PEOPLE**

**Faculty:** Professor Vanderby (director) (BME/Ortho); Associate Professor Stone (associate director) (Materials Science and Engineering); Professors Abbott (Chemical and Biological Engineering), Anderson (Civil and Environmental Engineering), Babcock (Materials Science and Engineering), Beebe (Biomedical Engineering), Blick (Electrical and Computer Engineering), Booske (Electrical and Computer Engineering), Botz (Electrical and Computer Engineering), Coppersmith (Physics), Cramer (Civil and Environmental Engineering), Drugan (Engineering Physics), Eom (Materials Science and Engineering), Eriksson (Physics), Giacomini (Mechanical Engineering), Gilbert (Physics), Hamers (Chemistry), Hitchon (Electrical and Computer Engineering), Keely (Cell and Regenerative Biology), Klingenberg (Chemical and Biological Engineering), Kou (Materials Science and Engineering), Kuech (Chemical and Biological Engineering), Lagally (Materials Science and Engineering), Lakes (Engineering Physics/Biomedical Engineering), Martin (Mechanical Engineering), Mawst (Electrical and Computer Engineering), McCaughan (Electrical and Computer Engineering), Nealey (Chemical and Biological Engineering), Onellion (Physics), Osswald (Mechanical Engineering), Perepezko (Materials Science and Engineering), Rowlands (Mechanical Engineering), Sarmadi (Human Ecology), Shohet (Electrical and Computer Engineering), Tikoff (Geology and Geophysics), Tung (Mechanical Engineering), Vanderweide (Electrical and Computer Engineering), Wendt (Electrical and Computer Engineering), Winokur (Physics), Wong (Bacteriology), Associate Professors Allen (Engineering Physics), Block (Medical Physics), Chesler (Biomedical Engineering), Crane (Engineering Physics), Evans (Materials Science and Engineering), Gopalan (Materials Engineering),

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Science and Engineering), Gong (Biomedical Engineering), Jiang
(Electrical and Computer Engineering), Jin (Chemistry), Li (Mechanical
Engineering), Lynn (Chemical and Biological Engineering), Ma (Electrical
and Computer Engineering), Masters (Biomedical Engineering), Morgan
(Materials Science and Engineering), Murphy (Biomedical Engineering),
Negrut (Mechanical Engineering), Palecek (Chemical and Biological
Engineering), Pfefferkorn (Mechanical Engineering), Ploeg (Mechanical
Engineering), Root (Chemical and Biological Engineering), Rzchowski
(Physics), Szlufarska (Materials Science and Engineering), Thelen
(Mechanical Engineering), Voyles (Materials Science and Engineering),
Williams (Biomedical Engineering), Xu (Geology and Geophysics);
Assistant Professors Arnold (Materials Science and Engineering),
Cai (Radiology/Medical Physics), Li (BME/Ortho), Mahanthappa
(Chemistry), McDermott (Physics), Ogle (Biomedical Engineering),
Sheinis (Astromony), Wang (Materials Science and Engineering), Weibel
(Biochemistry)