

Faculty members – UA Tuscaloosa Campus

<http://materialsscience.ua.edu/faculty/>

Aerospace and Mechanics Engineering

Prof. M. Barkey – FEM modeling, deformation of materials
Prof. A. Haque – computational/experimental mechanics
Prof. S. Jones (emeritus) – materials mechanics
Prof. S. Roy – composite materials

Chemistry Department

Prof. M. Bakker – catalysis, nanostructure synthesis
Prof. D. Dixon – computational science, energy systems
Prof. D. E. Nikles – nanoparticle synthesis, magnetism
Prof. A. Gupta – biomaterials, magnetic nanomaterials
Prof. R. Metzger – molecular chemistry and devices
Prof. S. Street – organic-based nanoscale material synthesis

Civil, Construction & Environmental Engineering

Prof. J. Wang – materials for structural applications
Prof. E. Giannini – concrete, structural materials

Chemical & Biological Engineering

Prof. Y. Bao – nanoparticles, biomedical materials
Prof. J. Bara – polymer engineering, ‘green’ processes
Prof. R. L. Hartman – micromechanical systems
Prof. T. Klein – atomic layer deposition, semiconductors
Prof. C. H. Turner – computational materials, Monte Carlo
Prof. H.-T. Wang – semiconductor materials and devices

Electrical and Computer Engineering

Prof. S. L. Burkett – microelectronic device fabrication
Prof. Y.K. Hong – magnetic materials, devices
Prof. M. Kim – nanoscale optical materials, sensors
Prof. D. Li – solar energy materials, devices
Prof. K. Sushma – magnetic materials, devices
Prof. P. Kung – semiconductor devices

Mechanical Engineering

Prof. Y. K. Chou – materials manufacturing/joining
Prof. Y. Guo – materials manufacturing/processing
Prof. S. N. Mahmoodi – materials sensors/M(N)EMS

Metallurgical & Materials Engineering

Prof. V. Acoff – joining sciences
Prof. R.C. Bradt (emeritus) – ceramics, fracture
Prof. Luke Brewer - Additive manufacturing, spray deposition
Prof. N. Chopra – energy materials, nanomaterials
Prof. S. Gupta – magnetic materials, devices
Prof. L. Nastac – solidification sciences, modeling
Prof. R. Reddy – material processing, ionic liquids
Prof. J. Song – nanoscale energy capturing materials
Prof. T. Suzaki – magnetic materials, devices
Prof. G.B. Thompson – microscopy, phase transformations

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Metallurgical & Materials Engineering

Prof. Garry Warren (emeritus) - corrosion
Prof. M. L. Weaver – high temp materials, coatings

Physics & Astronomy Department

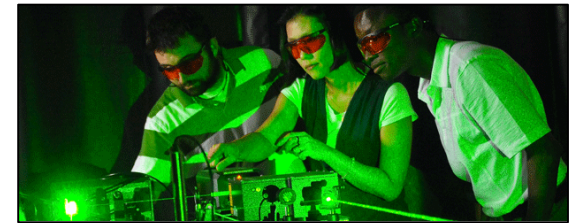
Prof. W. Butler – magnetic computational science
Prof. J.W. Harrell – nanoscale magnetism
Prof. P. LeClair – oxides, magnetic materials
Prof. G. Mankey - magnetic materials, devices
Prof. C. K. A. Mewes – magnetic computational sciences
Prof. T. Mewes – magnetic resonance force microscopy
Prof. M. Oleg – magnetic computational science
Prof. S. Sarker – theoretical electrical transport studies
Prof. P. Visscher (emeritus) – magnetic materials modeling

Tuscaloosa and the surrounding area

Tuscaloosa, located along the banks of the Black Warrior River in West Central Alabama, is approximately 60 miles, or 100 kilometers, from Birmingham, Ala. The Tuscaloosa metropolitan area, with more than 150,000 people, was named “The Most Livable City in America” in 2011 by the US Conference of Mayors and one of the “100 Best Communities for Young People” by America’s Promise Alliance. The city offers a range of shopping, restaurants and state parks in the vicinity. Tuscaloosa is home to Mercedes-Benz U.S. International, which allows Tuscaloosa to have the only Mercedes-Benz Museum in the world outside of Germany. In addition, the city has the Westervelt Warner Museum of American Art, featuring one of the most significant assemblages of American art to be found anywhere in the world.



Graduate Studies in Materials Science



<http://materialsscience.ua.edu/>

THE UNIVERSITY OF
ALABAMA
FOUNDED 1831

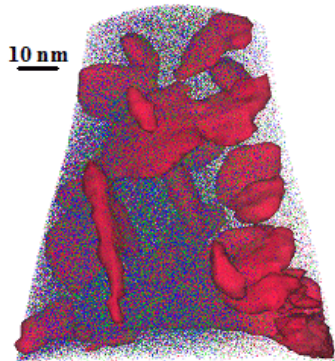
About the Materials Science Program

The Materials Science PhD Program is an interdisciplinary, interdepartmental, and intercampus doctoral program linking the three universities that comprise the University of Alabama System – the University of Alabama (UA), in Tuscaloosa, the University of Alabama at Birmingham (UAB), and the University of Alabama in Huntsville (UAH).

Through this interdisciplinary graduate education approach, students tailor their course work across department, college, and university campus boundaries. In doing so, students have greater options to maximize their academic, research, and professional interest. Students typically have undergraduate degrees in physics, chemistry, or materials-related engineering disciplines.

Since Materials Science is a graduate program, and not a department, nominally students select a “home department” where their advisor resides. With their advisor and graduate committee, students develop a plan of study that satisfies each campus’s PhD requirements. Students who successfully complete the program receive a PhD degree in Materials Science from the University of Alabama System.

Specifically to The University of Alabama-Tuscaloosa campus, the student body is more than 36,000 students with approximately 20 percent being graduate students. Over 40 faculty members in eight departments on the UA campus participate in this program. You can take a virtual tour of UA by visiting <http://tour.ua.edu/virtual/>



Atom probe reconstruction of a Ni-Ti shape memory alloy.

Research Facilities

The University of Alabama has a range of research centers that provide students state-of-the-art facilities and multi-disciplinary, collaborative interaction. Many of the Materials Science faculty either manage or are members of these centers. See ua.edu for a complete listing of research centers and facilities.

Science and Engineering Complex – Completed in 2013, these \$300M modern research and teaching buildings houses the laboratories for the engineering and sciences. <http://eng.ua.edu/buildings/>

AIME – Alabama Institute for Mentoring Entrepreneurs (<http://aime.ua.edu/>), which serves as incubator for UA-based start-up companies

Central Analytical Facility (CAF) – Houses more than \$10 million of analytical microscopy equipment, including a TEM, FIBs, SEMs, XPS, atom probe and microprobe. Please visit <http://www.caf.ua.edu>

Center for Advanced Vehicle Technologies – Research center dedicated to the vehicle technologies including powertrains, energy storage, materials manufacturing and electronics and serves the budding auto-manufacturing industry in the southeastern US. <http://cavt.eng.ua.edu/>

MINT – Materials for Information Technology is a multidisciplinary research center that brings together faculty and students who work on magnetic and energy based research. <http://www.mint.ua.edu>

Micro-Fabrication Facility (MFF) – A multi-million dollar, 7,000-square-foot clean room with more than 2,200 square feet of class 100/1000 that houses various physical vapor deposition, litho graphic and ion etching instruments that provides for device and related nanomaterials research.

Ray L. Farabee Metal Casting Laboratory – This more than 6,000 square-foot facility houses various melting furnaces for casting steels, brass, bronze, cast iron, aluminum, superalloys, etc. as well as mold equipment, a spectrometer, and a 3D printer for investment casting pattern fabrication.

Application process

The Tri-campus Materials Science program accepts applicants throughout the year. Student with degrees in physics, chemistry, and materials-related engineering disciplines or interests are encouraged to apply. Students should apply to the program at the respective campus they would like to attend – UA, UAB, or UAH. Most admission decisions are made between January through March for the next fall academic term. Faculty members who have external support for new students may expedite the admission date decision for identified, outstanding candidates. The majority of the graduate students in the program are supported through external research grants or fellowships which includes tuition, health care and a stipend. Students accepted into the program, but declined funding and chose not to support the cost of their degree at the time of acceptance, are still eligible for admission up to one year. These students will be on program list per campus of eligible, admitted students for faculty to consider if external funding is awarded at some later date. Applicants interested in graduate studies are encouraged to contact faculty advisors to determine compatibility and available funding opportunities.

How to Apply

To apply, applicants should visit <http://graduate.ua.edu/>; select the Materials Science program; and complete the on-line form. You will need to provide a statement of purpose, official academic transcript, references and submission of an official GRE score. International applicants (non-native English speakers) will also be required to complete a provisional language exam (TOEFL or IELTS or PTE.) Regular admission requirements are >3.0 GPA; >300 revised GRE (>1000 general GRE); and > 550 pBT or 79iBT TOEFL, >6.5 IELTS, >59 PTE. These scores do not necessarily grant admission to the department. Competitive Materials Science applicants have scores exceeding these minimums.

Please send questions concerning the graduate program to Professor Gregory B. Thompson, Director of the UA campus Materials Science Ph.D. Program gthompson@eng.ua.edu