

# EARTH AND MINERAL SCIENCES

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## Departments and Schools

### John and Willie Leone Family Department of Energy and Mineral Engineering

The John and Willie Leone Family Department of Energy and Mineral Engineering offers academic programs addressing scientific, technological, business, and social challenges related to energy and earth resources and systems. The EME undergraduate B.S. majors address the effective production, conversion, use, and management of energy and mineral resources and include Energy Business and Finance (EBF), Energy Engineering (ENENG), Environmental Systems Engineering (ENVSE), Mining Engineering (MNGE), and Petroleum and Natural Gas Engineering (PNGE). The EME graduate program offers advanced degrees in Energy and Mineral Engineering (M.S. and Ph.D.) with research concentration options in energy system engineering (ESysE), fuel science (FSC), mining and mineral process engineering (MMPE), and petroleum and natural gas engineering (PNGE). The B.A. degree in Energy and Sustainability Policy (ESP) and graduate certificates and associated M.S. in Renewable Energy and Sustainability Systems (RESS) complement our programs by integrating areas of study in energy security, sustainability management, renewable energy, foreign and domestic energy and sustainability policy analysis. The EME graduate program also offers integrated undergraduate-graduate (IUG) degree programs that combine the M.S. in Energy and Mineral Engineering with each of the five B.S. degree programs.

MORE INFORMATION (<http://www.eme.psu.edu/>)

### Department of Geography

The Department of Geography offers academic programs (M.S., M.G.I.S., Ph.D. in Geography) that conducts theoretical and applied research in all four major subfields of geography: human, physical, environment and society, and GIScience. Across these subfields we emphasize the geography of global change. Our perspectives span local to global levels across spatial and temporal scales. Addressing these components of global change, we also advance geographical information science and technology needed to use new spatial data generated from combinations of specialized sensors and the Internet of things. Research and specialization clusters include: Environmental Change and Prediction; Food Security and Human Health; Geospatial Big Data Analytics; Justice, Ethics, and Diversity; Population, Environment, and Governance; Spatial Modeling and Remote Sensing. The department also offers online certificate and master's degree programs in Geographic Information Systems (GIS), Remote Sensing and Earth Observation (RS), and Geospatial Intelligence (GEOINT).

MORE INFORMATION (<http://www.geog.psu.edu/>)

### Department of Geosciences

The Department of Geosciences offers M.S. and Ph.D. degrees in geosciences, dual titles in Astrobiology and Biogeochemistry, and an M.Ed. in Earth sciences all designed to provide students with an integrated, interdisciplinary study of the whole Earth, afford them with the skills and knowledge needed to solve real-world problems, and prepare them for careers at the forefront of geosciences.

MORE INFORMATION (<http://www.geosc.psu.edu/>)

### Department of Materials Science and Engineering

The Intercollege Graduate Degree Program in Materials Science and Engineering offers both M.S. and Ph.D. degrees in Materials Science and Engineering. Instruction covers both the fundamental science of materials and practical engineering applications. Students have the opportunity to learn in depth about one more families of materials, including biomaterials, ceramics, metals, nanomaterials, polymers, and semiconductors. There is also a doctoral minor in computational materials.

MORE INFORMATION (<http://www.matse.psu.edu/>)

### Department of Meteorology and Atmospheric Science

The Department of Meteorology and Atmospheric Science offers academic programs (M.S., Ph.D. in Meteorology and Atmospheric Science; dual-title Ph.D. in Climate Science; dual-title Ph.D. in Astrobiology) that explore fundamental aspects of cloud physics, turbulence, numerical weather prediction, climate change, weather risk, atmospheric chemistry, atmospheric convection, and atmospheric dynamics on a range of scales using theory, observations, and numerical simulations.

MORE INFORMATION (<http://www.met.psu.edu/>)