The Nanoscale Materials Fabrication and Characterization Core in the UAB Center for Nanoscale Materials and Biointegration (CNMB) feature state of the art nanofabrication and characterization facilities. These include facilities for the fabrication of nanostructured thin film coatings, nanoparticle synthesis, nanofibrous materials, and nanoscale patterning of surfaces using lithography. The nanoscale materials and coatings can be composed of diamond, metals, ceramics, and polymeric materials for a variety of applications in biomedical implants, nanoparticles in bio-sensing, drug delivery and biomedical imaging. Microfabrication Laboratory offers facilities for mask-less lithography and sputter deposition for fabrication of sensors on a variety of substrates in a Class 7000 cleanroom environment. The core also offers a suite of instruments for characterization of nanoscale materials using atomic force microscopy, x-ray photoelectron spectroscopy, thin-film x-ray diffraction, Raman and Infrared spectroscopy. The mechanical testing includes nanoindentation hardness, nanoscale tribological testing, and wear simulators for evaluation of biomedical implants. The core also provides to all internal and external users full support in the analysis and interpretation of data that is obtained using the above mentioned equipment.