



Nuclear Magnetic Resonance (NMR)

LGRT 075, 082 & Conte B342, B622

Weiguoh Hu | weiguoh@polysci.umass.edu | (413) 577-1428

Jasna Fejzo | jfejzo@umass.edu | (413) 545-0081

The facility provides high field NMR instruments and expertise to elucidate molecular structure, conformation, dynamics and interactions.

Nutriceutical Formulation

Chenoweth 127

David Prodanas | dprodana@foodsci.umass.edu

(413) 545-1013

Isolates bioactives by supercritical CO₂, concentrate bioactives by reverse osmosis, thermally treat by ultrahigh pasteurization and agitating retort, produce emulsion systems by homogenization and encapsulate by freeze or spray drying.

Sensor Integration

LSL S469

Robert Jackson | jackson@ecs.umass.edu | (413) 545-1386

Miniaturizing systems in preparation for human testing.

Roll-to-Roll Fabrication and Processing Facility

LSL S440 Suite

Jeff Morse | jdmorse@research.umass.edu | (413) 545-5264

Provides a unique set of custom, moving web-based tools for the translation of advanced materials and nanomanufacturing processes to industrially relevant scalable platforms for the development of next generation life science innovations.

X-Ray Scattering Facility

Conte B341, B522

Alex Ribbe | aeribbe@polysci.umass.edu | (413) 658-7415

Instruments dedicated to the structural analysis of crystalline materials, the determination of highly periodic morphologies in self-assembled systems over a large length scale range.



A significant portion of core equipment has been purchased through MLSC grant funding support.

UMass Amherst Resources

UMass Library

W. E. B. Du Bois & Science & Engineering-LGRC
www.library.umass.edu

Human Performance Lab

Engineering Lab I
www.ecs.umass.edu/hpl

Biospecimen Resource and Molecular Analysis Facility (BRaMA)

Pioneer Valley Life Sciences Institute, Springfield, MA
pvlsi.org/brama

Water and Energy Technology (WET) Center

www.umass.edu/water-energy

Off-Campus Core Facilities

Massachusetts Green High Performance Computing Center

100 Bigelow Street, Holyoke, MA 01040

John Griffin | john.griffin@umass.edu

(413) 545-9939 | University of Massachusetts Amherst

Provides world-class computational infrastructure, indispensable in the increasingly sensor and data-rich environments of modern science and engineering discovery.

Small Molecule Screening Facility (SMSF) (High Throughput Screening)

University of Massachusetts Medical School

364 Plantation Street, Worcester, MA 01655

Sergey Savinov | ssavinov@umass.edu

(413) 577-0548 | University of Massachusetts Amherst

Provides investigators with a platform for assay development and screening of unique, small drug-like molecule libraries occupying novel chemical space in a variety of readout systems for the discovery of exceptional chemical probes, potential diagnostic and therapeutic candidates of high impact, as well as research tools.

Our Sister Campuses

UMass has more than 90 Research Core Facilities across the state of Massachusetts that are available to researchers from government, academia and industry on a fee-for-service basis. These shared resources offer a wide range of services to the research community, including cutting-edge technologies, high-end instrumentation and technical support for basic, translational and clinical research.

UMass Boston

100 William T. Morrissey Blvd., Boston, MA
www.umb.edu/orsp/research_core_facilities

UMass Dartmouth

285 Old Westport Road, Dartmouth, MA
www.umassd.edu/spa/

UMass Lowell

One University Avenue, Lowell, MA
www.uml.edu/Research/CRF/

UMass Medical School

55 Lake Ave North, Worcester, MA
www.uml.edu/Research/CRF/

PARTNER WITH US!



Research and Innovation to Translate Basic Science into Product Candidates

UMass Amherst Core Facilities Inquiries

Andrew Vinard

Core Facilities Director

UMassCores@umass.edu | (413) 577-4582

Institute for Applied Life Sciences
Life Science Laboratories
240 Thatcher Road
Amherst, MA 01003

umass.edu/ials/core-facilities

UMassAmherst | Core Facilities

Core Facilities

Institute for Applied Life Sciences
University of Massachusetts Amherst



Facilities for Precision Manufacturing, Characterization, Human Health Monitoring, Cellular & Molecular Analysis

UMASS CORE FACILITIES

UMASS offers more than 30 core facilities, available to both internal and external users. These turnkey facilities are a significant resource for faculty research and student training in the Massachusetts and New England region, while representing a novel interface for government and industry partners. These facilities enable faculty, students, and industry collaborators to access a broad array of equipment to enhance their R&D capabilities, address both basic and translational questions, deliver technologies and product candidates more rapidly, and become more competitive in obtaining state, federal, foundation, and private funding. These facilities, many housed in the Life Science Laboratories, will advance the University's objectives of becoming a destination and partner of choice as well as the Institute's goals of supporting high-quality research and advancing translational programs towards novel drug targets, drug delivery technologies, personalized healthcare devices, nutraceuticals, and other technologies that enhance human health and well being.

UMass has more than 90 Research Core Facilities across the state of Massachusetts that are available to researchers from government, academia and industry on a fee-for-service basis. Learn more about these shared resources at massachusetts.edu/research/core-research-facilities.

Advanced Digital Design and Fabrication (ADDFab)

LSL S470

David Follette | follette@umass.edu | (413) 577-4540
Cutting Edge 3D Printing in metals and polymers for fabrication, research, training, and education. Printing technologies include DMLS, DED, SLS, FFF and PolyJet.

Animal Imaging

ISB 068

Amy Burnside | aburnside@umass.edu | (413) 545-1385
Designed to assist members of the research community on UMass and other five college campuses to conduct research using live animal imaging technologies. Equipment is capable of fluorescence and luminescence imaging independent of or concurrent with CT imaging. A new high-resolution microCT is expected Jan 2019.

Animal Models

LSL S521

Wei Cui | wcu@umass.edu | (413) 545-0673
Provides transgenic, gene targeting, and mouse surgery service and training, performs microinjections of DNA into fertilized embryos to generate transgenic mice. Uses cutting-edge technologies-CRISPR/Cas9 genome editing, to generate gene knock-out or knock-in mice or other animal models.

Atomic Force Microscopy (AFM)

Conte B343

Alex Ribbe | aeribbe@polysci.umass.edu | (413) 658-7415
Provide analytical and high resolution scanning probe based microscopy. This includes Atomic Force Microscopy (AFM) related techniques such as tapping mode, contract mode or conductive AFM as well as force measurements.

Biophysical Characterization

LSL S541

Lizz Bartlett | dbartlett@umass.edu | (413) 577-0560
Interactions between biological macromolecules like proteins, nucleic acids, lipids and their complexes, and small molecule interactions with these macromolecules.

Bioproduction/Separation

LSL S577, S577A

Lizz Bartlett | dbartlett@umass.edu | (413) 577-0560
Equipment for expression, separation, and isolation of biomolecules allowing users to culture cells including bacterial, yeast, insect, plant, and mammalian cells, and then separate biomolecules of interest ie. proteins, nucleic acids, natural products, and metabolites.

Cell Culture

LSL S471A, S570

James Chambers | jjchambe@umass.edu | (413) 577-4580
Two cell culture facilities for both biological and bio-engineering approaches. Biosafety cabinets, incubators and general wet lab supplies.

Center for Human Health & Performance (CH²P)

LSL S360 Suite

Michael Busa | mbusa@umass.edu | (413) 577-0574

Exercise Intervention and Outcomes

Diagnostic testing capabilities include: exercise performance, VO₂ max, exercise stress testing, strength testing, body composition (including abdominal obesity) and bone density evaluation.

Human Motion

Assessment of human movement (free living and robot assisted) and human and robotic testing of sensor technologies.

Living Science

Evaluate biosensor performance in healthy participants or participants who are at risk for chronic disease while living in a natural environment.

Room Calorimeter

Capability to measure 24 hour human energy expenditure for purposes of movement sensor calibration and validation, and to conduct studies requiring assessment of energy balance and energy metabolism.

Sleep Monitoring Lab

Rebecca Spencer | rspencer@psych.umass.edu | (413) 545-5987
Equipped with partial and whole-head EEG systems for recording sleep physiology (sleep staging). A central control room will allow for on-line observation of sleep and monitoring of sleep in populations from infants to the elderly.

Collaboratories

LSL S461-463, S571-573

Andrew Vinard | avinard@umass.edu | (413) 577-4582
Research laboratory spaces available for industry partners, including start-up companies emerging from faculty research projects, to partnerships with more established companies that seek space on campus to develop medical devices and healthcare/life science related product candidates, all while retaining their intellectual property (IP).

Computational Modeling

LSL S585A

Chungwen Liang | chungwen.liang@umass.edu | (413) 577-4569
Provides consultative and collaborative service in computational and molecular modeling.

Device Characterization

LSL S465

David Follette | follette@umass.edu | (413) 577-4540
A full suite of mechanical testing capabilities, including tension, compression and torsion fatigue testing, surface roughness measurement, 3D scanning, and surface hardness measurement.

Device Fabrication (Cleanroom)

Marcus 15

Qiangfei Xia | qxia@ecs.umass.edu | (413) 545-4571
Designed to have CMOS processing technologies to serve as a key enabler towards personalized healthcare and preemptive medicine. Specifically, we aim to develop smart and miniature devices, circuits and systems with biomedical applications such as biosensing, DNA sequencing and smart implanting.

Electron Microscopy

Conte B163-B172

Alex Ribbe | aeribbe@polysci.umass.edu | (413) 658-7415
Transmission (TEM) and Scanning (SEM) Electron Microscopes as well as related sample preparation equipment.

Electronic Materials

Conte B523, B524

Volodymyr Duzhko | duzhko@mail.pse.umass.edu | (413) 577-0902
Offers a range of state-of-the-art analytical instruments for characterization of optical, electronic, electrical, and electrochemical properties of materials as well as tools for solvent-based fabrication and characterization of such optoelectronic devices as solar cells, light-emitting diodes, and field-effect transistors in the inert atmosphere of glove boxes.

Flow Cytometry

ISB 068

Amy Burnside | aburnside@umass.edu | (413) 545-1385
Provides the latest technologies in flow cytometry to the area research community. Fluorescence based flow cytometric analysis and microscope-based high-throughput imaging instrumentation is available. Analysis equipment is accessible to trained users 24/7 and fluorescence assisted cells sorting is offered by appointment. Instrument training, experimental design, scientific consultation and sample processing are also offered.

Genomics Resource Laboratory

Morrill 1, N330

Ravi Ranjan | ranjan@umass.edu | (413) 577-4501
Provides Next-Generation DNA Sequencing services, NGS library preparation, DNA and RNA Quality assessment, DNA and RNA isolation, qPCR, Single Cell Sequencing on C1 Single-Cell Auto Prep system.

High Frequency Sensor Development

LSL S460

Robert Jackson | jackson@ecs.umass.edu | (413) 545-1386
Provides world class measurement capability for frequencies into the Terahertz range. It will be used for high frequency spectral analysis of materials and for testing high-speed communications technologies.

Human Magnetic Resonance Center

LSL S230

Jacquie Kurland | jkurland@comdis.umass.edu
Brain and whole body structural and functional imaging and spectroscopy for academic and industry-based research.

Light Microscopy

LSL S576A

James Chambers | jjchambe@umass.edu | (413) 577-4580
Nikon instruments that enable a broad range of light microscopy methods and applications.

Mass Spectrometry

LSL S540

Stephen Eyles | eyles@biochem.umass.edu | (413) 577-1528
Analytical mass spectrometry equipment, providing analytical services and expertise in mass spectrometry.

mHealthLab

LSL S354

Deepak Ganesan | dganesan@cs.umass.edu | (413) 545-2450
Prashant Shenoy | shenoy@cs.umass.edu | (413) 577-0850
Develops algorithms and processes for large scale wearable sensor networks to support the development of novel hardware.

Nanofabrication Cleanroom

Conte B112

John Nicholson | jnicholson@research.umass.edu | (413) 545-2772
Device design, fabrication process formulation, photomask layout advice, and prototype testing utilizing traditional and novel approaches to microfabrication and nanofabrication of electronic devices, sensors, microfluidic devices, and nanomaterials test structures.