

BYU Resources for Research

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Analytical Characterization Facility

Analytical Characterization Facility (Formerly known as Spectroscopic Facility)
C231, C270, and C295 BNSN
801-422-7083
Director: Jason Sorensen
https://labs.chem.byu.edu/csms-instruments

The Analytical Characterization Facility in the Department of Chemistry and Biochemistry houses a broad collection of spectroscopic, chromatographic, mass spectrometric, and surface analysis instrumentation for analytical characterization, qualitative identification, and quantitative measurement. The facility supports teaching, research, and collaborative projects across a wide range of chemical, biological, environmental, and materials applications.

Spectroscopic and optical instruments include UV-Vis-NIR spectroscopy, fluorescence spectroscopy, circular dichroism spectroscopy, Fourier Transform infrared spectroscopy (FTIR), Raman microscopy, and X-ray photoelectron spectroscopy (XPS). These instruments support molecular identification, optical property measurements, surface and thin-film analysis, fluorescence-based assays, vibrational spectroscopy, and materials characterization.

Elemental and isotopic analysis is available using a single inductively coupled plasma mass spectrometer with ICP-MS/MS capability. This instrument is used for trace metal analysis, elemental quantification, isotope-related applications, and analysis of complex environmental, biological, and materials samples.

Separation and mass spectrometry instruments include high-performance liquid chromatography (HPLC), gas chromatography with FID/TCD detection, gas chromatography–triple quadrupole mass spectrometry (GC-MS/MS), and capillary electrophoresis (CE). These systems support the separation, identification, and quantification of complex mixtures in gas-phase and liquid-phase samples.

Surface and materials analysis methods include X-ray photoelectron spectroscopy and Raman microscopy for investigating surface chemistry, thin films, coatings, polymers, particles, tissues, and other solid materials.

These instruments are housed in the Benson Science Building (BNSN), rooms C231, C270, and C295, and are available to on-campus users. Training and independent instrument access are available through consultation and collaboration with the facility director. Please see the facility website for more information on specific instruments, accessories, scheduling, and user access.

Ballard Center for Social Impact

Ballard Center for Social Impact
360 TNRB
801-422-5283
https://socialimpact.byu.edu/

The Ballard Center for Social Impact is dedicated to promoting human flourishing and reducing human suffering by developing faith and skills to solve social problems. Our work centers students in a global community of practicing changemakers. By developing, applying, and teaching world-class frameworks and models for humanitarian work, we build on gospel-based and evidence-backed perspectives to empower highly vetted social problem-solving organizations and the BYU community to address global and local issues. We champion interdisciplinary work and connect faculty and students working on related problems. We support state-of-the-art humanitarian practices such as cocreation, centering local knowledge, impact evaluation, and evidence-based intervention.

Connect with Ballard Center Experts and Resources for:

- Humanitarian project idea validation
- Issue mapping and research to understand the context of a problem
- Human-centered design principles applied to social problem-solving
- Logic modeling
- Cocreation and deep customer focus centering local knowledge
- Evaluating the effectiveness of interventions using formal outcome evaluation
- Local and global intervention and implementation planning
- Processes, resources, and training in humanitarian work generally

The center also provides hands-on learning experiences, courses, competitions, grants, fellowships, and events designed to equip students, faculty, and community members with the tools to address pressing societal challenges.

BioComms Lab

BioComms Lab
Inside BRMB
https://biometrics.byu.edu
Director: Kevin John

The BioComms Lab is an established research laboratory within the School of Communications that has operated continuously since 2005, supporting empirical investigation of cognitive, emotional, and physiological responses to communication, with

particular strength in health and science communication. The lab has completed multiple academic and professional projects examining health communication and health literacy, social media use and effects, body image and visual representation, strategic messaging, and user experience and message design. The BioComms Lab employs validated biometric and immersive methods including eye tracking, facial expression analysis, galvanic skin response, virtual reality, and ultraviolet photography to capture process-level measures of attention, affect, and engagement that extend beyond self-report. In addition to advancing faculty scholarship, the lab provides a stable research infrastructure for student training and collaborative, interdisciplinary projects.

Bio-Innovation Program

Bio-Innovation Program
Director: Tim Jenkins

The Bio-Innovation program at the College of Life Sciences provides hands-on experience with key aspects of biotech entrepreneurship. Central to this program is the CELL 444/445 course series (CELL 444 Course | BYU Catalog; CELL 445 Course | BYU Catalog), where students learn to develop technologies toward commercial or non-profit applications. In coordination with the Technology Transfer office, several startup companies to commercialize student/faculty inventions in several fields, including diagnostics, therapeutics, medical devices, and food production, have emerged from the program. This program is also a hub for connecting faculty, students, and their discoveries with influential biotech professionals, investors, and mentors. The program aims to position student-faculty teams to maximize the real-world impact of their innovations.

Biosafety Level-3 Laboratory (BSL3 Lab)

Biosafety Level-3 Laboratory (BSL3 Lab) and Select Agent Archive
Director: Richard A Robison, Ph.D.
Laboratory Manager: Alyssa Applegate, M.S.

The BSL-3 lab is a 2100 ft2 facility that has shower-in and shower-out capabilities, a pass-through autoclave, personal protective equipment dawning and doffing rooms, 3 research suites (2 for bacteriology and 1 for virology), and an animal BSL-3 (ABSL-3) suite. These facilities are equipped with a total of 4 certified biosafety cabinets and directional air flow controls to maintain continual negative pressure between all rooms and at all times.

In addition, these laboratory suites are furnished with all the equipment necessary to store, culture, detect, image, and quantify high-risk microbial agents. This includes freezers (-20 and - 80°C), refrigerators, incubators (shaking, CO2, and static), water baths, centrifuges (ambient and refrigerated), microscopes (regular and inverted),

anaerobic culture equipment, cell disrupters, a robotic DNA purification system, and a UV/Vis spectrophotometer.

The BYU select agent archive began in 1998. Initially, it was funded by the Department of Energy under the Chemical and Biological Non-proliferation Program (CBNP). After the events of 2001, the Department of Homeland Security was created and assumed the support of the archive.

Until 2013, the archive was supported by the National Biodefense Analysis and Countermeasures Center (NBACC). The archive was created by collecting select agents through collaborations with international collections, various State health departments, and other agencies. Each isolate was definitively identified, characterized, and annotated. Genomic DNA was extracted and shared with other National research efforts focused on detection and attribution. There are currently almost 1,400 select agents archived in the BYU repository including isolates of: Bacillus anthracis, Burkholderia mallei, Burkholderia pseudomallei, Clostridium botulinum, Francisella tularensis, and Yersinia pestis. Many of these agents (especially the F. tularensis and Y. pestis) are unique clinical isolates obtained from the Utah and New Mexico State health departments.

Thus, this archive, in its entirety, is unique and is not found at any other location. It is clearly one of the most extensive collections of CDC select agents in the country.

BYU Studies

BYU Studies
1063 JFSB
801-422-6691
https://byustudies.byu.edu

BYU Studies is the publisher of the premier Latter-day Saint academic journal, publishing scholarship aligned with the Restoration of the gospel of Jesus Christ.

Confocal Microscopy Core

Confocal Microscopy Core
Faculty: Arminda Suli
https://cell.byu.edu/directory/arminda-suli

The microscopy facility has the following:

- Inverted Olympus FluoView FV1000 confocal laser-scanning microscope equipped with an argon laser providing excitation light at wavelengths of 458 nm, 488 nm, and 515 nm, as well as green Helium-Neon and red Helium-Neon laser sources

with respective excitation wavelengths of 543 nm and 633 nm. The following lenses are available: 4X/0.16 air, 20X/0.75 air, 40X/1.30 oil, 60X/1.6 oil, 60X/1.20 water.
- Inverted fully motorized Evident FV3000RS with a hybrid scan head (galvanometer and resonant scanner), four laser diode lines (405/488/561/640 nm), TruSpectral multi-alkali fluorescence detectors, two TruSpectral high sensitivity GaAsP fluorescence detectors, transmitted light detector and DIC for optics with 10X, 20X, 40X oil, 60X oil , and 30X silicone objectives, LED light source for epifluorescence (DAPI, GFP, TRITC), TruFocus Z-drift compensation module to combat focal drift during time-lapse experiments, motorized stage and stage software for multi-area time lapse and tiling and stitching, CellSens software package.
- An upright, state-of-the-art, two-photon microscope has now been built by faculty, undergraduate and graduate students in the department according to the specifications of Rosenegger et al1 and it is ready to use. It is equipped with a Coherent Chameleon Discovery laser that has a fixed beam at 1050nm and an adjustable beam at 680nm-1350nm with capabilities of performing rapid 2-color imaging. Two water immersion lenses are available for imaging: 20X water and 40X water.
- A Revolve Echo epifluorescence microscope that combines an upright and inverted microscope in one, with 4X, 10X, 20X, 40X, 100X oil objectives and DAPI, FITC, TRTC, TxRED and CY5 fluorescent cubes.

Creative Works Office (CWO)

Creative Works Office
3760 HBLL
801-422-5297
https://cwo.byu.edu

As part of Brigham Young University's Intellectual Property Services, the Creative Works Office (CW) promotes, protects, and markets projects developed by faculty, staff, and students, licenses them through trusted companies, and/or offers items for sale on the CW websites. CW provides services to relieve the faculty of the burden of being extensively involved in the business aspects of the commercialization of their creative works. CW provides expertise in business relationships, negotiations, protection of intellectual property, agreements and contracts, entrepreneurship, and management.

In close collaboration with the General Counsel's office, liability protection for the institution and individual faculty members is afforded through careful review of each business arrangement and agreement. Creative works are protected through judicious use of copyrights and trademarks. Any revenue generated through CW is shared with the developers and is utilized within the university community to support both continuing research projects and discretionary projects. The Academic Mission of BYU and of

individual faculty members are encouraged by the Creative Works Office through dissemination of research accomplishments through commercialization for the mutual benefit of the Academic and public communities.

Digital Humanities

The Office of Digital Humanities
1163 JFSB
801-422-5360
https://odh.byu.edu

The Office of Digital Humanities supports research and pedagogy in humanities, foreign language learning, and related disciplines through innovative, computational approaches.

- Collaboration with faculty on the use of digital methods and tools for research and pedagogy, including WordCruncher for textual analysis.
- Custom development of software, databases, and workflows for humanities research and teaching, including language learning.
- A testing center for exams, including language assessments.
- A high-fidelity recording studio for producing podcasts, screencasts, and instructional materials.
- Computer labs and classrooms that support assignments drawing on specialized technology.

Electron Microscopy Facility

Electron Microscopy Facility
A104 ESC
801-422-9953
Director: Felipe Rivera
Manager: Paul Minson
EMLab@byu.edu
http://microscopy.byu.edu

The BYU Electron Microscopy Facility supports the BYU research community by providing access to high-end scanning and transmission electron microscopy equipment (SEM / TEM) for BYU students, faculty, and staff. The 5,000 sq. ft. purpose-built facility, located in the Eyring Science Center Annex, comprises dedicated spaces housing two high-end transmission electron microscopes (KRIOS G4 and Iliad 300), three scanning electron microscopes (Apreo VPSEM, Helios FIB/SEM, and Verios HRSEM), four sample preparation labs, and administrative offices. The Krios G4 TEM is an atomic-resolution cryogenic S/TEM equipped with an E-CFEG, a Selectris X Imaging filter, tomography capabilities, and fast data acquisition. The Iliad S/TEM is a new,

fully integrated, Titan-class, probe- and image-corrected, analytical atomic-resolution TEM with Energy-Dispersive X- Ray Spectroscopy (EDX) and Electron Energy-Loss Spectroscopy (EELS) capabilities. SEM capabilities include Variable Pressure imaging, Focused Ion-Beam Milling, and EDX. The sample preparation spaces include a dedicated BSL-2 wet lab with cryogenic sample preparation capability, an additional wet lab with ultramicrotomy, and two dry labs. Technical expertise in these capabilities is primarily provided through consultation with researchers, basic on-demand equipment training, and university courses. Additionally, imaging, analytical, and sample preparation services may be available as determined through consultation.

Faculty Center

Faculty Center
3770 Harold B. Lee Library
801-422-7419
http://facultycenter.byu.edu

The BYU Faculty Center supports the professional development of faculty throughout all stages of their academic career with a variety of programs and services. The Faculty Center's programs and services reflect the following priorities:

- Assist with early-career challenges and opportunities, including support for faculty new to BYU
- Support the ongoing professional and personal development of mid- and late-career faculty
- Support faculty serving in academic leadership roles
- Assist with implementing BYU's distinctive mission as an LDS church-sponsored university that is centered on the development of disciple-scholars
- Aid with improving academic writing through an annual workshop for faculty

The Faculty Center provides a number of sessions throughout each academic year on scholarship. They also coordinate Faculty Learning Communities, offering opportunities for cross-disciplinary scholarly collaborations and discussions on topics such as gospel methodology and active learning. You can learn more about resources for scholarship and research on their website: https://facultycenter.byu.edu/scholarship-research

Faculty Publishing Service

Faculty Publishing Service
4096 JKB
Managing Editor: Savannah Lunt
https://facultypublishingservice.byu.edu/services

The Faculty Publishing Service provides help with any publishing needs, such as editing, proofreading, typesetting, and indexing. They assist BYU faculty and staff with a variety of publication and production tasks.

Family History and Genealogy

Center for Family History and Genealogy
1031 JFSB
cfhgoff@byu.edu
https://cfhg.byu.edu/

The Center for Family History and Genealogy is an academic research center that provides quality online resources at no charge. Center projects encompass Early Latter-day Saint history, emigration, British research, and more. We also host the Script Tutorial website that is a valuable tool for those seeking to learn more about paleography and gain skills to read old documents in various languages. All Center projects are mentored by faculty, and the resulting databases are valuable resources for anyone interested in historical and genealogical research. A full list of our projects and links to our resources can be accessed at cfhg.byu.edu.

The Center is an open lab, and all computers offer access to genealogical programs and FamilySearch images that are only viewable in a Family Search Center. Also available is a small library of genealogy reference books that should remain on site.

Flow Cytometry Facility

Flow Cytometry Facility
E227 BNSN
801-422-0249
Director: Ken Christensen
https://labs.chem.byu.edu/flow-cytometry-facility

The BYU Chemistry and Biochemistry Flow Cytometry Facility provide access to state-of-the-art flow cytometry and cell sorting instrumentation for various research projects. The flow cytometry facility has a 4-laser (V, B, Y, R) Thermo Attune NxT cytometer that can be sampled from tubes or up to 384-well plates. The facility also houses a Bio-Rad S3e 3-laser cell sorter for use by research and teaching labs in the Department and across campus. Located in the Benson Building on the BYU campus, the facility encompasses 600 sq. ft. of laboratory space designed to facilitate student-focused research and educational activities. The facility is open to faculty, students, and external collaborators, providing support in experimental design and troubleshooting, data acquisition, and analysis.

Genomics and Bioinformatics Center (GBC)

Genomics and Bioinformatics Center (Formerly known as the DNA Sequencing Center Research Facility)
4046 LSB
801-422-3647
Director: Tommy W. Terooatea
Manager: Emily Andersen
https://biology.byu.edu/genomic-and-bioinformatic-center

The Genomics and Bioinformatics Center at Brigham Young University is a modern research facility focused on advancing genomic science through a variety of sequencing technologies and applications. The center offers services in standard Sanger sequencing, long-read sequencing with PacBio technology, and in single-cell multi-omics, which combines transcriptomics, epigenomics and proteomics to study cellular function and diversity.

The Center also provides basic tools for DNA and RNA fragmentation analysis, including the Agilent FemtoPulse and Bioanalyzer systems, to ensure high-quality sequencing data. In addition to sequencing, the center is expanding to support researchers with bioinformatics training and guidance in data analysis. The center is equipped with a wet lab for sample preparation, testing rooms, and participant preparation spaces. The facility is open to faculty, students, and external collaborators, providing support in protocol development, data acquisition, and analysis.

Grants and Contracts Accounting

Grants and Contracts Accounting
ECCB 108
801-422-5990
fsresearch@byu.edu
https://finserve.byu.edu/grants-contracts

Grants and Contracts Accounting is responsible for the post-award administration of sponsored programs (federal, state, and private grants, contracts and cooperative agreements). This office supports all faculty, staff, and students involved in formal research at BYU.

They assist faculty and staff through Post-Award services including:

- Establishing and maintaining sponsored research accounts
- Processing budget additions and adjustments

- Preparing invoices and requests for reimbursement
- Preparing and submitting financial reports to sponsors
- Review and process sponsored research expenditure transfers (journal entries)
- Provide support and recommendations on research related issues
- Project close-outs
- Compliance monitoring

They are also responsible for certain core functions related to post-award administration of sponsored projects including:

- Cash management, including cash receipt recording and drawdowns
- Collections activities on outstanding invoices
- Subcontract monitoring
- Administration of Effort Report Certification
- Preparations of annual Fringe Benefit Study for federal cognizant agency
- Preparation of Facilities & Administrative Rate Proposal

Healthcare Research Hub

Healthcare Research Hub (Formerly known as Healthcare Industry Research Collaborative)
524 TNRB
Director: Bill Tayler
Affiliates: Anton Bowden (Mechanical Engineering), Mary Davis (MMBio), Paul Eliason (Economics), Len Novella (Public Health), Marie Prothero (Nursing), Cody Reeves (Organizational Behavior and HR)
https://marriott.byu.edu/healthcare-leadership/research/the-hub/

The BYU Healthcare Research Hub functions as a centralized ecosystem uniting BYU faculty, students, and global industry partners. This group has two primary purposes: 1) to generate healthcare knowledge through four distinct workstreams—academic research, practitioner outlets, industry projects, and CES collaborations—partnered with industry leaders, and 2) to provide undergraduate and graduate students with the opportunity to participate directly in this research, increasing experiential learning and enhancing critical thinking skills.

Students can join this research engine by registering for the HL 385/685 courses for credit or by working as paid research assistants to ensure project continuity. In this lab environment, students receive training on data collection and research design, choose a topic to explore, and are matched with a faculty advisor who possesses context expertise to guide them through the process. This structure enables students to move projects from

conceptual phases to published or implemented outcomes. Faculty can participate by applying to be a Healthcare Research Hub Affiliate.

Information Technology

Office of Information Technology
ITB (Information Technology Building)
801-422-4000
support@byu.edu
https://oit.byu.edu

The BYU Office of Information Technology (OIT) is an IT services organization that exists to enhance teaching, learning, and university business activities. OIT provides enterprise IT solutions that help the university achieve its mission. Individual units have Computer Support Representatives (CSR) that focus on specific local needs.

OIT and CSRs ensure that faculty and staff are provided with access devices (office computer and peripherals), necessary software, and support.

OIT provides foundational infrastructure to campus departments, including wired/wireless networks, classroom audio/visual services, application development, system administration, and other services commonly used throughout the university. Data center hosting services are also available for researchers with research computing equipment.

Software available to employees include the following:

- Microsoft 365, including Word, Excel, PowerPoint, OneNote, and others
- Adobe Creative Cloud: Photoshop, Illustrator, Acrobat, In Design, and others
- AI: Microsoft Copilot
- Video conferencing: Zoom and MS Teams
- Cloud storage: Box and OneDrive
- Security software: CrowdStrike Falcon and Microsoft Security
- VPN accounts for research equipment that needs remote access

Kennedy Center for International Studies

Kennedy Center for International Studies
237 HRCB
801-422-3375
Director: Stan Benfell, PhD
https://kennedy.byu.edu/

The David M. Kennedy Center for International Studies is the heart of international engagement for the BYU community. By supporting and implementing interdisciplinary international experiences on campus and abroad, the Kennedy Center raises global awareness and competency and equips the community with international perspectives and tools to promote intellectual, physical, and spiritual well-being throughout the world.

Our academic programs include an International Relations major, and International Development minor, and area studies majors and minors that cover every region of the globe. We also offer study abroad programs from general education and from every college across campus.

Laboratory Animal Resource Center (LARC)

Laboratory Animal Resource Center
University Attending Veterinarian (protocol consultation and animal welfare)
801-422-2262
Animal Resource Center Manager (facility and space management
801-422-3979
Animal Resource Center Assistant Manager (animal care)
801-422-1229
http://larc.byu.edu

The Laboratory Animal Resource Center (LARC) and the vivarium are administratively part of the Research Administration Office (RAO). Any research or instructional use of laboratory animals must be reviewed and approved by the Institutional Animal Care and Use Committee (IACUC). In partnership with the IACUC, LARC monitors the use of research animals to ensure compliance with applicable Federal, State and Local laws and guidelines as well as Institutional Policy. The LARC aids, advises, and educates faculty, research staff, and students in order to facilitate research goals while maintaining regulatory compliance. LARC provides for the procurement, housing, health, and welfare of research animals housed in BYU facilities.

LARC's Mission is to:

- Provide quality care for all animals used at the University.
- Assist the faculty and their students in their mission of quality research with respect to the use of laboratory animals.
- Act as a resource center for faculty and their students on all issues related to laboratory animals.
- Assist the University in meeting its goal of humane treatment of laboratory animals.

Language Sciences Lab

Language Sciences Lab
B163 JFSB
801-422-1937
https://languagescienceslaboratory.byu.edu

Located in the basement of the Joseph Fielding Smith Building (JFSB B163), the Language Sciences Laboratory features dedicated research spaces for various language studies. Equipped with functional Near-Infrared Spectroscopy (fNIRS), an Electroencephalogram (EEG), and two eye-tracking devices (Tobii Spectrum Pro, and Eyelink 1000 Plus), these rooms provide both students and faculty with the tools to investigate the cognitive processes associated with language.

Beyond research, we also offer a main room available for scheduling meetings, presentations, and academic gatherings. Whether you're a researcher or faculty seeking a space to engage in meaningful conversations, our main room provides a versatile setting to accommodate diverse needs. This facility empowers both students and faculty to engage in rigorous research endeavors aimed at advancing knowledge and ultimately going forth to serve and better our society. Reserve a space by visiting the Language Sciences Lab website.

Library Support

Harold B. Lee Library
Library Administration Offices
2060 HBLL
801-422-2905
https://lib.byu.edu

The BYU Library provides a wide variety of support for university faculty, much of which stems from our vast academic collections-- including many primary source materials in the L. Tom Perry Special Collections-- that support both research and teaching. Faculty can request books, journals, and databases that the library doesn't currently own or license, and they will be considered for purchase or licensing. (If appropriate, a trial of a suggested database may be arranged before a purchase or licensing decision is made.)

Information on library services can be found at lib.byu.edu. Among the most popular services are:

- Research and information literacy instruction for specific classes or assignments (contact your subject librarian to schedule; https://lib.byu.edu/directory/#browse-by-subject)
- Research consultations with subject librarians
- Research guides in broad subject areas (https://lib.byu.edu/guides/)
- Course Reserve provides free access to required class readings. Learn more: https://coursereserve.lib.byu.edu/new-cr)
- Library Delivery Service will deliver materials you have checked out to your department office (https://lib.byu.edu/services/library-delivery-service/)
- The Research and Writing Center helps students with assigned writing (https://rwc.byu.edu/; in collaboration with University Writing)
- Multimedia Creation Spaces include a production studio, sound recording booths, a makerspace Lab and software training: https://lib.byu.edu/services/?categories=multimedia-creation
- Geospatial Services and Training (https://lib.byu.edu/services/geospatial-services-and-training/) provide students and faculty with assistance on GIS projects and analysis.
- Reserve a Faculty Research Room for an entire semester or as needed: https://lib.byu.edu/services/faculty-research-rooms/

Magnetic Resonance Imaging Research Facility (MRIRF)

MRI Research Facility
150 MCDB
801-422-9420
https://mri.byu.edu

The BYU MRI Research Facility (MRI RF) is a state-of-the-art imaging center equipped with advanced 3T MRI and microCT scanners supporting a wide range of imaging research projects across multiple disciplines on campus. Located in the McDonald Building on the BYU campus, the facility encompasses over 3,500 sq. ft. of specialized space, including dedicated offices, classrooms, and laboratories designed to facilitate student-focused research and educational activities. The 3T Siemens MAGNETOM Vida MRI system offers high-resolution imaging capabilities for structural, functional, and diffusion studies, while the Perkin-Elmer QuantumGX microCT scanner provides detailed imaging for small animal research and materials science applications. The MRI RF also features a coil laboratory for custom coil development, a wet lab for sample preparation, testing rooms, and participant preparation spaces. The facility is open to faculty, students, and external collaborators, providing support in protocol development, data acquisition, and analysis.

Marketing Lab

Marketing Lab
332 TNRB
https://www.byumarketinglab.com

The BYU Marketing Lab is a consulting and analytics agency embedded within BYU Marriott School of Business. The lab can be hired for consumer insights (segmentation, new product development, pricing, messaging, or anything using quantitative surveys or qualitative interviews). Other work includes brand strategy (competitive analysis, brand positioning), advanced analytics (conjoint, clustering, predictive models), AI marketing training/implementations, and digital/social marketing.

Mass Spectrometry Facility

Mass Spectrometry Facility
C021 BNSN
801-422-2201
Director: Christopher Tracy
https://labs.chem.byu.edu/ms-facilities

The Fritz B. Burns Cancer Research Mass Spectrometry Facility in the Department of Chemistry and Biochemistry provides state-of-the-art instrumentation for high-resolution mass analysis in proteomics, metabolomics, and lipidomic. The facility houses several advanced mass spectrometers, including:

1. Agilent 6530, 6546, and 6560 IM-QTOF systems, paired with Agilent 1260 and 1290 liquid chromatography (LC) systems as well as a Thermo Altis Plus system with a Vanquish Duo LC system, supporting high-resolution molecular profiling, ion mobility separation, and quantitative analyses for small molecules, pharmaceuticals, metabolomics, and lipidomic.
2. Thermo Scientific Orbitrap Astral, Orbitrap Astral Zoom and Orbitrap Eclipse Tribrid mass spectrometers, each equipped with Ultimate 3000 RSLCnano and Vanquish neo LC systems, optimized for high-throughput bottom-up proteomics, advanced peptide sequencing, and post-translational modification analysis.

Comprehensive data processing is supported through FragPipe; Dia-NN; Spectronaut; Thermo Proteome Discoverer, Chromeleon, and Ardia; and Agilent MS analysis software, ensuring precise identification and quantification across complex biological samples.

Training and technical expertise are available through consultation and collaboration with the facility director.

Metabolomics Center

Metabolomics Center
S161 & S188 ESC
801-422-4075
Director: Shawn Christensen
https://ndfs.byu.edu/metabolomic-facility

The BYU Metabolomics Center integrates advanced metabolomics services with diverse biological analyses. Whether for discovery studies or targeted analyses, our center provides metabolomics services for a variety of sample types including human/animal tissue, serum, plasma, urine, cells, stool, plant tissue, and others. Experimental samples are resolved on a variety of instruments including 1) a Thermo Orbitrap Exploris 480 high-resolution mass spectrometer coupled to a Vanquish Horizon ultra-high performance liquid chromatography (UHPLC) system; 2) an Agilent 7890A GC coupled to a 5977B MSD; 3) a Gerstel MPS Robotic autosampler with Solid Phase Micro Extraction (SPME) for volatile analysis; 4) an Agilent 8860 GC with a flame ionization detector; and 5) various HPLCs coupled to refractive index, diode array, evaporative light scattering, or fluorescence detectors. Our services include assistance with experimental design, method development, data acquisition, interpretation, and presentation for targeted and untargeted data sets.

Neal A. Maxwell Institute for Religious Scholarship

Neal A. Maxwell Institute for Religious Scholarship
1100 West View Building
801-422-9229
https://my.byu.edu

The Neal A. Maxwell Institute for Religious Scholarship is BYU's central hub for original, mission-inspired research on scripture and religion. Organized around four key initiatives—Book of Mormon, Bible, interfaith understanding, and latter-day discipleship—our research community includes a core research faculty and a cohort of rotating fellows from across campus. Guided by Elder Maxwell's vision that "for a disciple of Jesus Christ, academic scholarship is a form of worship," the Institute provides support for its fellows' projects through a collaborative research environment, campus events, and various communications platforms. It's book imprint and public programming bring the best of religious scholarship to a broad Latter-day Saint audience.

NMR Spectroscopy Facility

NMR Spectroscopy Facility

C008 BNSN
801-422-2404
Director: Scott Burt
https://chembio.byu.edu/nmr-facility

The NMR Facility in the Department of Chemistry and Biochemistry provides tools for analyzing the structure of small molecules. Three solution-state NMR instruments are available for trained users. A variety of NMR active nuclei are available, such as ^{1}H, ^{13}C, ^{15}N, ^{19}F, ^{29}Si, and ^{31}P. Other NMR active nuclei are available, but factors such as natural abundance, quadrupole moment, and frequency ratio dictate the feasibility of observing a particular isotope. Samples must be dissolved in a deuterated solvent and analyzed in a 5 mm NMR tube.

1. Bruker Avance Neo 500 MHz instrument:
    - Prodigy Cryoprobe improves low-band sensitivity by a factor of 3 and high-band sensitivity by a factor or 2 relative to a standard 500 MHz NMR probe.
    - 24 position sample changer allows queueing samples overnight.
    - Sample temperatures available from -40° to +125°C.
    - Acceptable sample concentration is 500 mM to 1 mM (10 mM recommended).

2. Varian NMRS 500 MHz instrument:
    - 12 position sample changer allows queueing samples overnight.
    - Sample temperatures available from -40° to +125° C.
    - Acceptable sample concentration is 500 mM to 5 mM (30 mM recommended).
3. Varian Inova 300 MHz instrument:
    - Only 1H, 19F, 13C, and 31P are available on this instrument.
    - Sample temperatures available from -40° to +125°C.
    - Acceptable sample concentration is 800 mM to 20 mM (60 mM recommended).

Contact the facility director to arrange user training or to discuss strategies for analyzing a particular sample of interest.

PF Manufacturing Shop

PF Manufacturing Shop (Previously known as the PML)
108 CTB
801-422-4570
Primary Contact: Shae Jones, shae_jones@byu.edu
Contact: Therin Garrett, thering@byu.edu
https://pf.byu.edu/transportation-and-manufacturing-services

The PF Manufacturing Shop is a prototyping service facility. We provide product development, prototype design, and fabrication planning services. We have an in-house shop for most fabrication needs. We can connect BYU faculty and students with off-campus machine shops and fabricators, and interface with these outside entities to have prototypes manufactured to your specification. Work Orders for services at this facility can be submitted at: https://pf.byu.edu/wo/request.

Religious Studies Center

Religious Studies Center
185 HGB
801-422-6975
https://rsc.byu.edu

The BYU Religious Studies Center was established in 1975 under the direction of Dean Jeffrey R. Holland. Our mission is to encourage, sponsor, and publish serious, faithful, gospel-related materials. We publish and market high-quality religious books and a periodical, the Religious Educator, of both an academic and devotional nature. Our goal is to promote greater understanding of the gospel of Jesus Christ and its importance in the lives of Latter-day Saints. We have published groundbreaking works on Latter-day Saint culture and history as well as in-depth studies dealing with scripture and doctrine.

Research Administration Office (RAO)

Research Administration Office
A-285 ASB
801-422-3841
https://rao.byu.edu

The RAO's mission is to help the university administration encourage and support faculty, students, and staff in their research, creative activities, and other expressions of academic scholarship.

1. *Sponsored Projects:*

Sponsored Projects administrators help faculty with the mechanics of getting research proposals through internal approvals (via Kuali Research) and submitted to the sponsor. Prior to and upon award, each administrator represents the university in research contract negotiations and facilitates award set up. They issue/negotiate subawards/subcontracts as applicable to research projects. They ensure that faculty members are informed of the unique requirements of each award so that faculty can ensure that the project will comply. They

coordinate any contractual needs during the course of each project and aid with close-out requirements.

Each Sponsored Projects Administrator is assigned to a portion of the University. College assignments can be found in the directory: https://spo.byu.edu/directory

2. Compliance Committees:

The RAO administers three compliance committees responsible for managing and approving human subject, animal subject, and recombinant DNA research:

- The Institutional Review Board (IRB) is the committee that assists with the purposes of the Human Research Protection Program (HRPP) which is to protect the rights and welfare of human research subjects conducted by BYU investigators. It is also driven by a mission to build character, treat all individuals with dignity and fairness, and strengthen academic integrity in research. We are committed to upholding the highest ethical standards and ensuring the protection and welfare of human research subjects involved in research activities.

  The HRPP not only strives to adhere to the highest ethical standards in its protection of human research subjects, but it also addresses the needs and concerns of investigators and enhances the support of their endeavors.

- The Institutional Animal Care and Use Committee (IACUC) oversee all aspects of BYU's animal care and use of programs for teaching and research. The IACUC reviews all animal use protocols, ensures compliance with federal and state regulations, inspects animal facilities and laboratories, and oversees animal training and education programs. The IACUC serves as a resource to faculty, investigators, laboratory technicians, students, staff, and administrators and provides guidance for conducting all animal use procedures in accordance with the highest scientific, humane, and ethical principles.
- The Institutional Biosafety Committee (IBC) supervises the use of recombinant DNA and handles other biological safety and hazard issues in experiments conducted at the university in a Biosafety Level 2 Lab (BSL2) or a Biosafety Level 3 Lab (BSL3), such as constructing and handling DNA molecules in organisms. The IBC must review all proposed BSL2 and BSL3 experiments in advance, before work can begin. The IBC has jurisdiction, regardless of the funding source or instructional nature of any recombinant DNA experiments.

Research Computing

Office of Research Computing
403 CB
801-422-3946
rcsupport@byu.edu
https://rc.byu.edu

The ORC provides high performance computing (HPC) resources for researchers. The department builds and operates HPC systems: clusters of servers or large memory computers that are fine-tuned and dedicated to intense processing needs. This includes fast servers, fast disk storage, the latest GPUs, and fast networks that connect everything together.

BYU faculty, students, and their associated collaborative researchers who have computationally intensive problems to solve are welcome to request access to resources. Resources are provided at no charge. Users are required to provide a statement to justify their needs.

Used by hundreds of users, there are 618 servers, 34,948 processor cores, 176 TiB of memory, 351 GPUs, over six petabytes shared storage, and security for protected data.

An Open OnDemand web portal makes graphical work easy for some types of applications.

Research Development Office (RDO)

Research Development Office
270 MCDB
801-422-1974
https://researchdevelopment.byu.edu

BYU's Research Development team consists of the university-wide Research Development Office (RDO) together with a team of college-embedded research development professionals who cooperate as BYU's Research Development Coordinating Council (RDCC). The council coordinates to facilitate and build a vibrant research culture on the BYU campus. Together, the RDO and RDCC provide support at every stage of the grants design and preparation process, including helping faculty identify relevant funding opportunities, align proposals to specific opportunities, find collaborators, and edit and revise proposals. RDCC members provide individual grants coaching over the entire proposal design and preparation process, offer technical assistance in drafting individual proposal components (budget, etc.), and work together with the Research Administration Office to ensure timely

proposal submission. The goal is to lighten faculty burden, improve grantsmanship and competitiveness, and facilitate funding for research to benefit the world.

Individually, the RDO office oversees university-wide grantsmanship training. Consistent events include a yearly campus-wide research development/grantsmanship conference, grant-writing bootcamp(s) aimed at early faculty, Fulbright Scholar workshop(s), a research networking event designed to help faculty identify and craft cross-disciplinary research efforts, and NIH and NSF training and associated writing groups. More specific training is also offered for specific and/or new funding opportunities (NSF CAREER, NIH MIRA, etc.).

Rollins Center for Entrepreneurship

Rollins Center for Entrepreneurship
South Campus Office Building (SCOB)
801-422-7437
Director: Mike Hendron
Program Director: Jeff Brown
https://rollins.byu.edu/

The Rollins Center for Entrepreneurship & Technology is BYU's hub where students learn how to start, acquire, or grow a business. The Center supports students from all majors by providing experiential learning through clubs, funding (competitions and grants), mentors, startup programs, and courses (ENT major and minor). The Center's goal is to help students turn ideas into reality while developing practical skills, ethical leadership, and an entrepreneurial mindset.

Running Mechanics Lab

Running Mechanics Lab
194 SFH
iain_hunter@byu.edu

The running mechanics lab measures various aspects of running mechanics using:

1. A force instrumented treadmill to measure ground reaction forces and timing of various events of running mechanics
    - Peak vertical force, braking and propulsive forces, ground contact time, flight time, …
2. A motion capture system to measure body positioning
    - Theia uses marker less tracking methods to create accurate three-dimensional body position.

    - Used for joint angles, ranges of motion, vertical oscillation of the center of mass.
3. Electromyography to measure muscle activation patterns, and a metabolic cart for measuring oxygen uptake.
    - Oxygen uptake provides running economy.

Statistics Consulting Center

Statistics Consulting Center
2152F WVB
801-422-4505
https://statistics.byu.edu/consulting-center

The Statistics Consulting Center provides statistical support to the university community while providing training to students in the Department of Statistics. This support includes:

- Study design and power analysis
- Help with preparing protocols for grant applications and IRB and or IACUC applications
- Help with setting up data collection and management tools such as electronic surveys and databases
- Randomization and study monitoring
- Analysis of the data, including summary graphs and tables
- Help with writing the statistical portions of methods and results sections for publication

Surplus

BYU Surplus
76 W 2230 N, Room 104
Provo UT 84064
801-422-9355
https://itsurplus.byu.edu/
https://purchasing.byu.edu/surplus-procedures

BYU IT & Surplus provides faculty with reliable products and services to complement their BYU experience. Faculty, staff, and employees of BYU (for On Campus use only) may obtain IT Surplus items at no cost and have BYU Moving transfer those items to their office. Items are also for sale to the general public.

Technology Transfer Office (TTO)

Technology Transfer Office
3760 HBLL
801-422-6226

https://techtransfer.byu.edu
https://www.youtube.com/@byutechnologytransfer

BYU Technology Transfer protects and commercializes technologies invented by faculty and staff at Brigham Young University. Our services include (1) receiving invention disclosures, (2) prototyping software and engineering devices, (3) obtaining intellectual property protection, (4) marketing technologies, (5) negotiating commercialization agreements, and (6) managing ongoing commercial deals. We can also help with intellectual property issues that arise in other contexts (e.g., consulting agreements). Our goal is to transfer university inventions into the marketplace, where they can become products and services that improve the world.

Wasatch Front Research Data Center (WFRDC)

Wasatch Front Research Data Center
University of Utah
260 S. Central Campus Drive, Suite 3550
Salt Lake City, UT 84112

Contacts:

- *Questions about research proposals and requirements:*
  - *Bryce Hannibal, WFRDC Administrator,* Bryce.Hannibal@census.gov
- *General questions about the RDC and access:*
  - *Mark Showalter, BYU WFRDC Representative,* showalter@byu.edu
  - *Lori Kowalski-Jones, WFRDC Executive Director,* lori.kowaleski-jones@fcs.utah.edu

Learn more:

- https://www.census.gov/about/adrm/fsrdc/locations/Utah.html
- https://www.census.gov/about/adrm/fsrdc/about.html

Overview:

The Wasatch Front Research Data Center (WFRDC) is part of the national network of Federal Statistical Research Data Centers (FSRDCs) and serves researchers from institutions throughout the intermountain region. It offers secure access to a wide array of restricted-use microdata collected by federal agencies.

Housed at the University of Utah, the WFRDC provides a secure, confidential environment for conducting high-impact research in public health, demography, business, sociology,

education, economics, and other fields. BYU is a consortium member, which means qualified faculty and students from BYU can access the facility for approved projects.

Why Use the WFRDC?

The WFRDC offers a unique opportunity for faculty and students to work with some of the largest and most detailed datasets available in the U.S., including:

- Census Bureau data (e.g., American Community Survey, Decennial Census)
- National Center for Health Statistics
- Bureau of Labor Statistics
- Social Security Administration
- USDA, IRS, CMS, and many others

These data enable research that is not possible with public-use files, due to their granularity and geographic detail. Researchers can explore questions involving small-area analysis, linked administrative records, or longitudinal population dynamics with high statistical power.

Getting Started:

Researchers from any academic discipline are encouraged to explore potential projects. Current and past projects have examined topics in:

- Population health and healthcare utilization
- Labor markets and income mobility
- Business formation and productivity
- Education and demographic change
- Environmental exposures and public policy

To begin, contact one of the representatives listed above to discuss project feasibility, proposal development, and the application process.

Whitmore Global Business Center

Whitmore Global Business Center
360 TNRB
801-422-6495
Director: Shad Morris
https://marriott.byu.edu/gbc/

The Whitmore Global Business Center is an academic and professional center within the BYU Marriott School of Business focused on international business education and global

management training. The center equips students, faculty, and the business community with the tools to succeed in a global marketplace through a range of programs and resources. It supports international business curriculum development, business language education (including courses in multiple languages), global consulting projects, case competitions, lectures, and study abroad opportunities.

X-Ray Diffraction Facility

X-Ray Diffraction Facility
C330 BNSN
801-422-2090
Director: Stacey Smith
https://labs.chem.byu.edu/csms-instruments

The X-ray Diffraction Facility in the Department of Chemistry and Biochemistry provides advanced tools for analyzing the atomic structure of solid materials. Both single crystal and powder diffraction experiments can be performed using the following state-of-the-art diffractometers:

1. A Bruker D8 Venture single crystal diffractometer with a kappa goniometer and a Photon III detector. Dual microfocus X-ray sources allow you to select either the Cu Kα or Mo Kα X-ray wavelengths for your experiment. An Oxford 800 cryostream provides access to temperatures ranging from 90 K to 400 K. This instrument is optimized for small molecule single crystal samples, but it can also be used for protein crystal screening and powder diffraction experiments. https://labs.chem.byu.edu/xrd-facility

    1. A Bruker D8 Advance materials science diffractometer with three incident beam optics, three sample stages, and an Eiger 250 area detector. This instrument facilitates an array of data collection techniques including powder diffraction, capillary diffraction, microdiffraction, texture analysis including pole figures for thin films and solids, grazing incidence diffraction for thin film samples, X-ray reflectivity, residual stress, and high-resolution diffraction for epitaxial thin films. https://labs.chem.byu.edu/byu-mp-xrd-facilities

Training and technical expertise in these capabilities is available through consultation and collaboration with the facility director.

For additional questions about these resources, or other research-based needs, please contact the BYU Research Development office at rdadmin@byu.edu.