

**Emergent Budget Proposal Narrative**  
**Division: Academic Affairs - Scientific Technical Services**

**Increasing Access to Scientific Instrumentation for Teaching and Research**

**Please check the appropriate category for this proposal and provide a brief (1-2 sentences) explaining the selection:**

- Urgent unforeseeable items that have arisen since the FY17-19 budget build process
- Items calling for prompt action that are so critical they cannot wait until the FY20-21 biennial budget build process
- Items that have arisen as a consequence of changed conditions, such as, but not limited to:
  - a) additional enrollments,
  - b) a change in leadership at planning unit level, and/or
  - c) State or federal policy changes
- Time-sensitive strategic opportunities that advance the university toward strategic plan fulfillment and are of the highest priority

I started my position in August 2017, and this request reflects my priorities for STS funding.

**Statement of Purpose:** *(What is the problem or opportunity being addressed? How will you address this problem or opportunity?)*

The University Instrumentation Center (UIC), operated by WWU's Scientific Technical Services group (SciTech), houses major multi-user scientific equipment supporting teaching and research across campus. UIC instrumentation is used by researchers and in undergraduate and graduate laboratory courses offered by numerous departments in multiple colleges (e.g. CSE, Huxley, CHSS, and Fairhaven). The UIC provides critical support for teaching in several ways: by delivering hands-on instruction to laboratory class sections; by analyzing class samples; and by supporting independent student capstone projects. The UIC also serves as a core element of Western's infrastructure supporting research and scholarship, by providing access to advanced instrumentation, one-on-one training of graduate and undergraduate student researchers, and expert technical advice and guidance. Together these services support hundreds of students and researchers every year, and facilitate millions of dollars in research grant activity.

The combination of increasing STEM enrollment, continued hiring of research-active faculty, and the growing sophistication of equipment SciTech oversees have stretched demand for UIC services beyond the program's ability to respond. SciTech staffing levels today are at essentially the same level they were 30 years ago. Consequently, some services are now rationed, there are insufficient resources to properly maintain all equipment, and some waiting times have increased substantially. The UIC currently has about 2.7 FTE staff, who oversee a range of chromatography, mass spectrometry, atomic spectroscopy, electron microscopy and other equipment, spread across four laboratories in two buildings. Understaffing of the UIC has become a critical emergent issue limiting access and impacting services in two primary areas: (1) chromatography / mass spectrometry, and (2) electron microscopy. To address this, **SciTech**

**requests funding to hire an additional 1.0 FTE technical staff member with expertise in chromatography and mass spectrometry (MS), and to increase the appointment of a current technical staff member who specializes in electron microscopy from 0.50 to 1.0 FTE.**

Chromatography and MS services are one of the fastest growing areas of demand for SciTech, driven by the increasing importance of these techniques in molecular genomics, proteomics, polymer engineering, environmental science, and other fields. This year, the UIC will provide chromatography services to seven undergraduate lab courses enrolling about 300 students, in addition to supporting numerous research applications and courses using other equipment. Chromatography and MS skills are also in high demand by regional biotech, aerospace, health care, government laboratory, and other employers, making it vital for Western to provide hands-on training with modern instrumentation. The requested new 1.0 FTE chromatography staff position will help ease bottlenecks, improve access, and bring valuable new expertise in this area.

Electron microscopy is the second area where the UIC struggles with emergent access challenges. The UIC oversees two electron microscopes: an older Tescan microscope, and a new JEOL microscope acquired in 2017. The latter was funded mostly by two external grant proposals, which together provided about \$475k of the \$575k purchase price. SciTech is currently seeking to replace the university's outdated Tescan with a comparable new model. The Tescan electron microscope is the most heavily used scientific instrument on campus, with logged instrument time during some academic quarters exceeding an average of 60 hr per week, and bookings on the new JEOL instrument are increasing rapidly as new users become trained. Electron microscopy is an important tool in many different fields, including Geology, Chemistry, Materials Science, Biology, Physics, Engineering and other programs, and is also used by non-STEM departments such as Art. Training new users in electron microscopy consumes considerable staff time because it requires one-on-one instruction, as does maintenance of these sophisticated instruments. This year AMSEC introduced a new special topics course in electron microscopy, adding to demand from existing courses using these instruments in AMSEC, Geology, Biology, and Chemistry. Last year CSE funded a new 0.50 FTE position that reports to SciTech to help oversee electron microscopy. While this was a very important step, electron microscopy remains severely understaffed, and demand for this technique continues to grow. We request funding to increase this position to 1.0 FTE in order to help address critical access bottlenecks.

**Anticipated Outcome(s):**

The requested staff FTE would help address a critical shortage of staffing within SciTech, providing a boost to teaching and research affecting almost every science department as well as many non-science departments. It will bring new expertise to Western in chromatography and mass spectrometry, an area of very high need. It will enable SciTech to better support existing instrumentation and new instrumentation planned for acquisition in the near future by several academic programs.

**Metrics:** *(How will outcomes be measured?)*

SciTech response time to requests will be lowered, more students and faculty will be served, both in class-based lab experiences, as well as capstone project and research experiences. More open

equipment time will be available, and more in-depth expertise and analyses provided. SciTech keeps metrics on all but the last item and will provide them annually to the Vice Provost for Research, who will include them in the annual report to the Provost.

### **How does this project support the University Mission and Strategic Objectives?**

Students, staff, and faculty from nearly every department and college rely on SciTech for expert advice and training on scientific instrumentation, assistance with laboratory class instruction, to design, build, and repair specialized equipment, and assist in the analysis of research samples. The program has seven technical staff (some on fractional appointments), a Director, and is overseen by a broadly representative Advisory Council. Hundreds of Western students, staff, and faculty have come through our doors to receive assistance with projects ranging from the repair of antique Steinway pianos, to the analysis of water quality samples, to the construction of custom equipment for Western athletic teams.

SciTech operates two core facilities providing access to multi-user scientific equipment and research support services: (1) the UIC, the primary multi-user core equipment facility on campus; and (2) machine, wood, and electronic shops with design, fabrication, and repair capabilities. These services are critical for research in STEM fields, but SciTech also provides equally important support to non-science programs as well. Students and faculty in Art, Design, Economics, Fairhaven College, Journalism, Music, Theater and Dance, and many other programs rely on SciTech for custom fabrication, design, and equipment repair services, assistance with student projects, and in many other ways.

With support from the Provost, in 2017 SciTech was able to restore a part-time Director position that had been vacant since the budget crisis of a decade ago. The program has since embarked on an effort to replace aging equipment, much of which is outdated. SciTech is working collaboratively with faculty and staff stakeholders to prioritize these activities and to aggressively pursue additional external funding opportunities to leverage internal funds for the replacement of university instruments. The addition of 1.5 FTE technical staff as requested in this emergent proposal would have a major impact on the program's ability to continue to deliver high quality services to the campus community, on time, with expert advice and guidance.

This proposal directly contributes to the following objectives from the new strategic plan:

Objectives 1. C. and G.

Increase support and infrastructure for all types of scholarship, research, and creative activity.

Provide technological and other academic infrastructure to support curricular innovation, research, scholarship, and creative activity, civic engagement and social justice.

Objective 3. D.

Provide technological and other academic infrastructure to support curricular innovation, research, scholarship, and creative activity, civic engagement and social justice.

**What are the consequences of not funding this package?**

SciTech would remain understaffed, with consequences for laboratory science courses, research and scholarship. There would continue to be insufficient time for developing professional expertise or depth of knowledge within instrumentation areas, for maintaining equipment, and for the provision of services to the campus community.

**What alternatives were explored and why was this alternative chosen?**

The only alternative is not adding a technical staff member, which leaves SciTech understaffed.

**Which units (departments, colleges, etc.) will be involved?**

Research and Sponsored Programs, SciTech, all SciTech STEM academic stakeholders

**Equipment:** *(For major (>\$25k) purchases, please provide the following information.)*

**Purpose:**

N/A

**Cost:**

N/A

**Anticipated Useful Life:**

N/A

**Replacement Cost if any:**

N/A

**Human Resources** (replace example below with needed resources)

1.0 FTE Technical Staff member at the Research Associate II classification, and an increase of 0.50 FTE to an existing staff position classified at the Research Associate II level.

**Operating & Maintenance Costs:**

Funding is needed for operating supplies associated with increased use of chromatography and mass spectrometry, and professional development to keep current with rapidly changing technology. These costs are estimated at \$10,000 / yr.

**Space Requirements:**

**How much new space will be required?**

N/A

**Is appropriate space available on campus?**  Yes  No

**If no, what space is needed and what features must the space have (e.g., fume hoods, plumbing, 3-phase power, etc.)?**

N/A

**WESTERN WASHINGTON UNIVERSITY**  
**Increasing Access to Scientific Instrumentation for Teaching and Research**

	FY19				Future Years Recurring (if different than FY19)			
	Employee FTE	One Time Costs	Recurring Costs	Total Costs	Employee FTE	One Time Costs	Recurring Costs	Total Costs
Faculty Salaries	0.00		\$ -	\$ -	0.00		\$ -	\$ -
Professional Salaries	1.50		\$ 80,028	\$ 80,028	0.00		\$ -	\$ -
Classified Salaries	0.00		\$ -	\$ -	0.00		\$ -	\$ -
Student Salaries (Graduate Assistants, Hourly Student, etc)	0.00		\$ -	\$ -	0.00		\$ -	\$ -
Benefits			\$ 37,067	\$ 37,067			\$ -	\$ -
<b>Total Salaries &amp; Benefits</b>		\$ -	\$ 117,095	\$ 117,095		\$ -	\$ -	\$ -
Supplies and Materials			\$ 10,000	\$ 10,000				\$ -
Professional Service Contracts (please detail below)				\$ -				\$ -
Equipment and Personal Technology - including new faculty set-up costs		\$ 2,000		\$ 2,000				\$ -
Other Goods and Services (includes memberships, supplies, materials)				\$ -				\$ -
<b>Total Goods and Services</b>		\$ 2,000	\$ 10,000	\$ 12,000		\$ -	\$ -	\$ -
Lodging				\$ -				\$ -
Automobile Rental				\$ -				\$ -
Air Travel				\$ -				\$ -
Ground Transportation				\$ -				\$ -
Other travel costs		\$ 2,000		\$ 2,000				\$ -
<b>Total Travel</b>		\$ 2,000	\$ -	\$ 2,000		\$ -	\$ -	\$ -
<b>Total Expenditures</b>		\$4,000	\$127,095	\$131,095		\$0	\$0	\$0

POSITION TITLE	FY19						Future Years Recurring (if different than FY19)					
	Proposed Annual Salary	Headcount	FTE	Budgeted Salary	Benefits	TOTAL	Proposed Annual Salary	Headcount	FTE	Budgeted Salary	Benefits	TOTAL
<b>Faculty Salaries</b>												
Total Professors	\$ -	0	0.00	\$ -	\$ -	\$ -	\$ -	0	0.00	\$ -	\$ -	\$ -
Total Associate Professors	\$ -	0	0.00	\$ -	\$ -	\$ -	\$ -	0	0.00	\$ -	\$ -	\$ -
Total Assistant Professors	\$ -	0	0.00	\$ -	\$ -	\$ -	\$ -	0	0.00	\$ -	\$ -	\$ -
Total Non Tenure-Track	\$ -	0	0.00	\$ -	\$ -	\$ -	\$ -	0	0.00	\$ -	\$ -	\$ -
<b>Faculty Salary and Benefit Total</b>	<b>\$ -</b>	<b>0</b>	<b>0.00</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>0</b>	<b>0.00</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Professional Salaries</b>												
Research Associate 2	53,352	2	1.50	\$ 80,028	\$ 37,067	\$ 117,095				\$ -	\$ -	\$ -
<b>Exempt Staff Salary and Benefit Total</b>	<b>\$ 53,352</b>	<b>2</b>	<b>1.50</b>	<b>\$ 80,028</b>	<b>\$ 37,067</b>	<b>\$ 117,095</b>	<b>\$ -</b>	<b>0</b>	<b>0.00</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Classified Salaries</b>												
<b>Classified Staff Salary and Benefit Total</b>	<b>\$ -</b>	<b>0</b>	<b>0.00</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>0</b>	<b>0.00</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Student Salaries</b>												
<b>Student Salary and Benefit Total</b>	<b>\$ -</b>	<b>0</b>	<b>0.00</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>0</b>	<b>0.00</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Total Salary and Benefits - All Positions</b>	<b>\$ 53,352</b>	<b>2</b>	<b>1.50</b>	<b>\$ 80,028</b>	<b>\$ 37,067</b>	<b>\$ 117,095</b>	<b>\$ -</b>	<b>0</b>	<b>0.00</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>