C5. Information and Technology Resources

The school has information and technology resources adequate to fulfill its stated mission and goals and to support instructional schools. Information and technology resources include library resources, student access to hardware and software (including access to specific software or other technology required for instructional schools), faculty access to hardware and software (including access to specific software required for the instructional schools offered) and technical assistance for students and faculty.

1) *Briefly describe, with data if applicable, the following:*

a) *library resources and support available for students and faculty*

GW Libraries and Academic Innovation (LAI) provides teaching, learning and research services and resources for students, staff and faculty. Libraries that are part of LAI include the flagship Estelle and Melvin Gelman Library on the main campus in Foggy Bottom, Eckles Library on the Mount Vernon Campus in Northwest DC, and the Virginia Science and Technology Library (VSTC Library) on the Virginia Science and Technology Campus in Ashburn, Virginia. Members of the GWSPH community also have access to the Himmelfarb Health Sciences Library, a specialized medical and health science resources library on the Foggy Bottom campus. GW LAI is a member of the Association of Research Libraries (ARL) and part of the Washington Research Libraries Consortium (WRLC), which makes GW students, staff and faculty eligible to borrow from any WRLC library.

Gelman Library is open 24 hours, 7 days per week, during the academic year and offers a variety of individual and group study spaces, some of which are reservable or accessible to graduate students only. The Global Resources Center on Gelman's seventh floor is open exclusively to graduate students outside of its staffed hours. Lockers are currently available for rent in Gelman Library on the fourth and fifth floors. A [floor-by-floor breakdown](#) of available spaces at Gelman Library is available on the library website.

Himmelfarb Health Sciences Library is open 24 hours a day, Monday through Friday, during the academic year. As a center for research, learning and creativity, Himmelfarb provides resources and services focused on the health sciences. Physical access to Himmelfarb is restricted to students, residents, faculty and staff from GWSPH, SMHS and GW Nursing. Specialty services offered at Himmelfarb include free 3D printing for students, staff and faculty, systematic review services and a research profile audit service. Most public health subscriptions are made available via Himmelfarb and Himmelfarb library faculty are available to teach in GWSPH classrooms and consult on major research projects' systematic reviews. They also keep a database of all publications by current GWSPH faculty, staff and students.

Through GW LAI, students, staff and faculty have access to:
- Thousands of physical and e-books from most major publishers, thousands of scholarly journals, millions of articles and over 700 databases that provide website access to major news sources such as *The New York Times*, *The Washington Post* and *The Wall Street Journal*.
- Instructional guidance for the development of both online and residential courses through the Instructional Core team.
- Multimedia project development through the CREATE Digital Studio.
- Free, peer-based writing support for students and faculty through the GW Writing Center (offers both virtual and in-person support appointments).

- Consultations with research librarians for strategizing and finding resources for projects, papers, presentations, articles and more.
- Consultations for assistance with quantitative, computational and spatial reasoning tasks through STEMworks (software includes GIS, R, Python, Stata, SAS).

b) *student access to hardware and software (including access to specific software or other technology required for instructional schools)*

GWSPH students, staff and faculty have access to several software licenses, including:
- GIS
- SAS
- Adobe Creative Cloud
- Microsoft 365
- Box
- Gmail/Google Drive
- Zoom
- Blackboard/Blackboard Collaborate Ultra
- VoiceThread
- Qualtrics
- RedCap
- SafeAssign (plagiarism software)
- TurningPoint (audience response system)
- Respondus LockDown Browser and Monitor (custom browser that locks down a virtual testing environment)
- 2GW (GWSPH's third-party learning management system for fully online programs and courses)

GW offers a Virtual Computer Lab, a cloud-based service that runs Windows-based software through a web-browser. This system allows users to access university-licensed applications remotely, 24/7. Available software includes Microsoft Office Apps (Excel, OneNote, PowerPoint, Publisher, Word 2016), Google Chrome Browser, ArcGIS, SAS, SPSS, NVivo12, RStudio, R, and GeoDA. Technology support services are offered through several specialized offices including GW IT Support Center, and Buff and Blue Apple Repair Center.

All students are required to have access to a laptop or desktop (see recommended specifications), secure, high-speed internet access, a web camera and headphones. GW libraries provide access to Windows and Mac workstations equipped with a variety of software, as well as printers, scanners, photocopiers and microform reader/scanners. Free Wi-Fi is available in all GW buildings. Wired connections are available in the residence halls and students may request internet connection equipment through the IT Support Center. Media equipment (e.g., camera, lights, microphones) are available for borrowing from the CREATE Digital Studio with a reservation.

c) *faculty access to hardware and software (including access to specific software or other technology required for instructional schools)*

In addition to the software listed above, faculty also have access to:
- Blackboard Ally (scores accessibility of files and provides guidance and tips).
- Echo360 (video recording, editing and sharing).

d) *technical assistance available for students and faculty*

GW Information Technology Support offers assistance to faculty, staff and students. They are available 24 hours a day, 7 days a week, by phone and have several walk-in support centers on all three GW campuses, which are open during business hours, Monday through Friday.

For support associated with 2GW, GWSPH students, staff and faculty rely on the 2U vendor. See Criterion D19.

GW LAI provides instructional technical assistance for faculty. The Instructional Technology Lab (ITL) offers faculty workshops and consultations on Blackboard, TurningPoint and other instructional technologies. They can assist faculty in the creation of multimedia course content and guide faculty through creating content for fully online courses. Last, LAI works with faculty to implement accessibility best practices.

We were the first school at the university to work extensively with GW IT Support to meet the needs of faculty and students during the COVID-19 pandemic. We have extensive experience with teaching and learning in remote settings through our online programs, with which we supported all our faculty and students remotely during the pandemic. We installed cameras and microphones in every classroom during the remote learning period and were ready for hybrid learning when students returned to campus. We also held numerous workshops for faculty on designing lessons and engaging students during remote and hybrid teaching and learning.

2) *Provide narrative and/or data that support the assertion that information and technology resources are sufficient or not sufficient.*

The information and technology resources at GWSPH are sufficient. Resources at the university level offer both generalized support and support unique to the needs of the students, staff and faculty at the school level. Library and IT services are available virtually so all our students can access them.

After the COVID-19 pandemic, GWSPH upgraded its technological equipment. Replacing the obsolete technology took longer than expected because of remote work, manufacturing delays and the loss of an in-house IT support team.

GWSPH is working to ensure that all members of the school have direct IT support. For example, GWSPH uses a classroom cloud system rather than a dedicated computer lab, which allows the entire building to become a computer lab.

3) *If applicable, assess strengths and weaknesses related to this criterion and plans for improvement in this area.*

Strengths
- Technology support is available from multiple sources, both in person and online. Students and faculty may request support 24/7 by phone, drop in at one of the many walk-in support centers or search for answers on the university website.
- We have a strong commitment to security in public health research. GWSPH invested in StrongBox and Armor software to meet the research needs of faculty, staff and students as it relates to high-speed data analysis, data storage and collaborative data sharing. Both StrongBox and Armor provide a comprehensive suite of analytical software applications and a secure centrally managed, cloud-based data storage service. This software is in addition to the university-level protocols.
- GWSPH faculty, staff and students have access to high-performance computing for research. This computing ecosystem includes Pegasus, a shared and cross-discipline

high-performance computing cluster that provides the latest in supercomputing technology and tools.

- In summer 2023, GW invested in an extensive upgrade to the university's wired and wireless networks. The infrastructure updates included replacing access points and other Wi-Fi hardware across our campuses. Along with enhanced connectivity and reliability, the upgrades provide greater visibility into network performance and enable technicians to work proactively to identify gaps and resolve issues quickly (see ERF > Criterion C > Criterion 5 > C5.1: IT Resources).
- During the 2023–2024 academic year, GWSPH upgraded the technology in all classrooms, convening center and conference rooms. All floor copiers in both the GWSPH building and Science and Engineering Hall were replaced.
- GWSPH students can print papers and articles at one of the university's printing stations. All students are given a $30 printing credit each fall. Several of the kiosks are located within the GWSPH building and the Science and Engineering Hall.
- GWSPH gained access to Panopto, which allows both full-time and part-time faculty to record and stream high quality video content for all courses. Additionally, Panopto can edit and re-record components of a lecture, allowing faculty to make real-time updates in response to global events. Faculty may also embed quizzes and reading checkpoints to ensure that students are engaged with the lecture content.
- GWSPH acquired all online lecture recordings created at 2U's recording studio and now maintains an in-house repository of these lectures, allowing the school to use content and update lectures in real time, as needed.

Challenges
- Investments related to technology require extensive financial resources and planning to ensure the technology best meets the needs of our community.
- With the centralization of IT services, IT has been less responsive to urgent classroom technology issues, which can impede instructional time and meetings.
- At times, the virtual computing lab can be slow and Wi-Fi variable. We are aware this is an issue that needs to be addressed in the context of the recent Wi-Fi update.
- Similarly, the university's recent network update has adversely affected several GWSPH website pages, and we are working to address this.

Future Plans
- GWSPH will continue to improve and enhance our technological capacity to support in-person, remote and hybrid learning and teaching and take advantage of technology to expand pedagogical methodologies and opportunities.
- As previously discussed in Criterion C3, GWSPH is actively negotiating with IT to create a shared services agreement to clearly delineate expectations and needs.