

Facilities & Other Resources

The George Washington University Milken Institute School of Public Health

Collated by:

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With Support of

GW Research Pod 2

Approved by:

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SECTION 1: Environment

The George Washington University (GW) was founded by charter in 1821 through an Act of Congress, fulfilling President George Washington's vision of an academic institution in the nation's capital. GW remains the largest institution of higher education in the District of Columbia and consists of three campuses (Foggy Bottom and Mount Vernon in Washington, DC, and the Virginia Science and Technology Campus in Ashburn, Virginia), along with several graduate education centers in the DC metropolitan area. GW is one of the nation's leading universities with chartered centers and institutes that provide research and innovation in science and technology, health, public policy, global security, and the arts and humanities. Research expenditures from federal sources, a key measure of an institution's research activity, increased from approximately \$92 million in fiscal year 2006 to \$202 million in fiscal year 2019.

The **Office of the Vice Provost for Research (OVPR)** promotes high standards of ethical research and scholarly conduct and supports activities that lead to extramural funding. OVPR can support collaborative interdisciplinary research teams by assisting with proposal development for large multi-investigator program projects and center grants. Research infrastructure is developed through dialogue with leaders and investigators across disciplines. Educational development seminars and workshops for early-stage investigators are also available through the Research Enhancement Unit.

GW sponsored projects administration is managed through support at the local level, three Pod units, and the central Office of Sponsored Projects. The Pod units are school-led and comprise pre-award, post-award, and contracting functions. Collectively, these three groups manage the complete lifecycle of a sponsored research project and provide continuity of support from inception to award closeout. Pod 2 provides service to the Milken Institute School of Public Health (SPH), the Biostatistics Center (BSC), and the Law School (LAW). The Pod management and staff are dedicated to sponsored projects administration, working collaboratively with principal investigators (PIs) to ensure research integrity and compliance to comply with federal, state, local laws, regulations, and university policies for or on behalf of GW.

The School of Public Health and Health Services was established in 1997 and renamed the **Milken Institute School of Public Health (GWSPH)** in 2014. The GWSPH is housed in a Leadership in Energy and Environmental Design (LEED) platinum-certified building featuring more than 115,000 square feet of floor space for classrooms, research labs, departmental offices, and conference rooms. The school attracts top scholars and is a catalyst for the study and advancement of a wide spectrum of community, social, and scientific public health initiatives. GWSPH is committed to excellence in scholarship to advance the health of the populations of our local, national, and global communities. Our mission is to provide the best public health educational experience incorporating our core values of scholarship and leadership, scientific rigor and policy analysis, and training to foster the next generation of thought leaders, practitioners, policymakers, and scientists who will transform public health worldwide, especially for underserved and vulnerable populations. RANKED #12 - U.S. NEWS & WORLD REPORT'S LIST OF BEST PUBLIC HEALTH GRADUATE PROGRAMS.

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In 2010, renowned epidemiologist, pediatrician, educator, and former Environmental Protection Agency (EPA) regulator Lynn R. Goldman was named Dean of GWSPH. Before joining in 2010, she was a professor of environmental health sciences at Johns Hopkins University's Bloomberg School of Public Health. Before that, Dr. Goldman served as Assistant Administrator for the EPA's Office of Chemical Safety and Pollution Prevention. She also worked at the California Department of Public Health, where she headed the Division of Environmental and Occupational Disease Control. A member of the National Academy of Medicine, Dean Goldman has chaired or served on numerous committees and forums, including the National Academy of Medicine Governing Council and the Governing Board of the National Academy of Sciences. She is a member of the Food and Drug Administration Science Board and the Advisory Committee to the Director of the Centers for Disease Control.

The GW School of Public Health (SPH) comprises seven departments: Environmental and Occupational Health, Epidemiology, Exercise and Nutrition Sciences, Global Health, Health Policy and Management, Prevention and Community Health, and Biostatistics and Bioinformatics. Each of the departments is headed by the department Chair and has administrative support by way of a Fiscal Operations Manager and/or Associate Director and a Finance team or Administrator. Each GW faculty member has a furnished office equipped with computers, phones, and all the requisite office functionalities.

Within SPH, research is coordinated by the Office of Research Excellence (ORE), headed by the Senior Associate Dean for Research & Innovation (SADR), Adnan A. Hyder, MD, MPH, PhD. The ORE is involved in specific research support functions such as Pre-Award, Research Integrity, Compliance and Ethics (RICE); Post Award, Research Metrics, and Administration Support. It houses research specialists in their respective domains, who are responsible for supporting Departmental Administrators and Investigators through the various processes and stages of research.

Within GWSPH, various research centers and programs focus on key areas of domestic and global health, including Antibiotic Resistance Action Center, Biostatistics Center, Center for Community Resilience, Center for Health and Health Care in Schools, Center for Risk Science and Public Health, Center for Social Well-Being and Development, DC Center for AIDS Research, DC Metro Tobacco, Research and Instructions Consortium (MeTRIC), Food and Health Policy Institute, Geiger Gibson Program in Community Health Policy, Gill-Lebovic Center for Community Health in the Caribbean and Latin America, GW Center of Excellence in Maternal & Child Health, Hirsh Health Law and Policy Program, Jacobs Institute of Women's Health, and Sumner M. Redstone Global Center for Prevention and Wellness. As a multi- and transdisciplinary institution, cross-school collaborations are ongoing within our seven academic departments, which include Environmental and Occupational Health, Epidemiology, Biostatistics and Bioinformatics, Exercise and Nutrition Sciences, Global Health, Health Policy and Management, and Prevention and Community Health. The multidisciplinary ethic of the school extends to the rest of the campus, as embodied by numerous collaborations with colleagues in GW's medical, nursing, public policy, law and business schools, Columbian College of Arts and Sciences, School of Engineering and the Elliott School of International Affairs. The public health

programs of the SPH have full accreditation from the Council on Education for Public Health (CEPH).

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SECTION 2: Departments

2.1 The Department of Environmental and Occupational Health (EOH)

Major areas of research within the [Department of Environmental and Occupational Health \(EOH\)](#) include antimicrobial resistance, chemical exposures and their health impacts, air pollution, climate change, sustainable energy, worker health, and risk and decision sciences. The Department's geographic focus extends beyond the greater Washington, DC metropolitan area to the broader United States and globally. Department faculty have received research funding from numerous agencies, including the National Institute of Environmental Health Sciences, the National Institute of Allergy and Infectious Diseases, the National Science Foundation, NASA, the Center for Disease Control and Prevention, the National Institute for Occupational Safety and Health, and the National Oceanic and Atmospheric Administration, as well as foundations such as the Wellcome Trust. Faculty serve on various federal boards and advisory panels, including the National Institutes of Health, the Environmental Protection Agency, the Centers for Disease Control, and the National Academies of Science, Medicine, and Engineering. The Department is home to the Antibiotic Resistance Action Center (ARAC) and leads the GW Climate and Health Institute.

2.2 The Department of Epidemiology (DEPI)

[The Department of Epidemiology](#) supports a robust portfolio of research in the quantitative and laboratory sciences of public health. Department faculty are engaged in infectious and non-communicable research that ranges from molecular biology and reproductive immunology to population-based surveillance to cohort studies to randomized clinical trials. Department faculty lead important research entities, including the NIH-funded DC Center for AIDS Research (DC CFAR), the DC Clinical Trials Unit (DC CTU), and the DC Cohort; they also lead the DC site of the CDC-funded National HIV Behavioral Surveillance (NHBS), and the GW Institute for Brain Health and Dementia. The Department's primary sources of funding include the NIH, CDC, and DC Health.

2.3 The Department of Exercise and Nutrition Sciences (ENS)

[The Department of Exercise and Nutrition Sciences \(EXNS\)](#) conducts nutrition and physical activity research that spans the basic and clinical sciences to applied community-based research and epidemiological analyses of large national and international surveillance studies. Focus areas include diet and physical activity for chronic disease prevention, school- and community-based physical activity and dietary interventions, metabolic and health effects of artificial sweeteners, dietary assessment in diverse populations, aging and physical function,

obesity prevention, food access, and sustainable food systems, injury prevention and muscular adaptation to exercise. The EXNS faculty have projects funded by organizations such as the National Institutes of Health, Department of Health and Human Services, U.S. Department of Agriculture, American Heart Association, The Gates Foundation, and local and national charitable foundations.

2.4 The Department of Global Health (GH)

Areas of research expertise within the [Department of Global Health \(GH\)](#) include maternal, newborn, and child health, malnutrition, infectious disease, chronic disease, environmental health, global health policy and governance of international health systems, vaccinology, demography, health systems analysis, global health economics, program evaluation, system dynamic models for building community resilience, and humanitarian health. The department is home to two centers, the Center for Commercial Determinants of Health and the Center for Community Resilience. Faculty in the Department hold a diverse portfolio of research and technical assistance from numerous funding agencies, including the National Institutes of Health, USAID, the Bill & Melinda Gates Foundation, as well as other foundations.

2.5 The Department of Health Policy and Management (HPM)

[The Department of Health Policy and Management \(HPM\)](#) conducts innovative and rigorous multidisciplinary research that addresses significant health challenges that are also pertinent to ongoing policy and management issues confronting the nation and the world. Health policy involves the decisions, plans, and actions undertaken by public and private organizations and governmental bodies to influence and improve individual and public health and health care through the achievement of specific goals. HPM faculty conducts research in areas such as the impacts of changes in the Affordable Care Act has been influential as legislators, policy makers, healthcare providers, administrators, payers, and consumers navigate the complexities of the evolving healthcare system. Leveraging our unique location in Washington, DC, the Department faculty are often invited to work with and advise federal agencies, Congress, and the White House on public health issues. The HPM has been rated as one of the top ten academic health policy units in the nation, according to US News and World Report. Our faculty also provide strategic and technical advice to clients to help them understand the evolving world of public health and health policy. Our major research activities include providing policymakers, public health officials, health care administrators and advocates, and the public with the information and ideas they need to improve access to high-quality affordable health care and population health. The primary source of funding is from numerous funding agencies, including the National Institutes of Health, Centers for Disease Control and Prevention, Agency for Healthcare Research and Quality, Patient-Centered Outcomes Research Institute, Centers for Medicare & Medicaid Services, Health Resources and Services Administration, The Atlantic Philanthropies, Robert Wood Johnson Foundation, East Bay Community Foundation, Commonwealth Fund, District of Columbia Department of Health, W.K. Kellogg Foundation, Kresge Foundation, American Heart Association, Henry J. Kaiser Family Foundation, and many others.

2.6 The Department of Prevention and Community Health (PCH)

[The Department of Prevention and Community Health \(PCH\)](#), chaired by Dr. Kerrigan, conducts research to develop, implement, and evaluate innovative and, theoretically based, and community-driven interventions to promote health and well-being. Department faculty are engaged in improving health outcomes for vulnerable and marginalized populations through work in the areas of health disparities and the social determinants of health and by addressing stigma and fostering community resilience and empowerment. Faculty and staff work in schools, clinics, and communities to improve health outcomes in maternal and child health, women's health, reproductive health, and mental and behavioral health. They lead research on how to improve health care access and are experts in health communication, health information technology, digital communication technologies, social marketing and mass media. Departmental faculty have a wide diversity of methodological expertise including in quantitative and qualitative cross-sectional and longitudinal study designs, individual and community randomized trials, mixed methods approach, social epidemiology and demography. They have deep experience in a variety of international, domestic and local contexts, designing both research projects and programs and have worked on the front lines of the global HIV pandemic. Departmental research is supported by government agencies, including the National Institutes of Health, the Centers for Disease Control and USAID; foundations including the Bill and Melinda Gates Foundation, the Robert Wood Johnson Foundation, the Children's Investment Fund Foundation, UNICEF, and local and state governments.

PCH has several affiliated centers including: The newly funded Center of Excellence in Maternal and Child Health Education, Science, Practice and Policy which aims to increase research opportunities related to maternal and child health by establishing partnerships with community organizations and health agencies. The Center will also partner with other MCHB-funded Centers of Excellence across the country on projects related to policy and practice. The Center for Health and Health Care in Schools (CHHCS) is a policy, resource and technical assistance center with a history of developing school-connected strategies for better health and education outcomes for children. CHHCS partners with foundations, government health and education agencies, school districts, and providers across the country to support their school-connected initiatives. The *Avance* Center for the Advancement of Immigrant/Refugee Health fosters an academic-community collaboration with a DC based Latino immigrant community to better understand factors contributing to racial/ethnic minority health disparities. The collaboration is intended to increase community and academic capacity to address these contributing factors. The Department's Center for Social Well-Being and Development uses a social-ecological approach to support positive health and social outcomes to reduce vulnerability worldwide.

Faculty in PCH are also affiliated with the GW mHealth Collaborative, an interdisciplinary group with representation from GW faculty in clinical medicine, public health, biostatistics, and engineering who are working to develop and test mobile and electronic health applications for improving health, including tobacco cessation and obesity prevention, as well as [the Gill-Lebovic Center for Community Health in the Caribbean and Latin America](#) research center, which is dedicated to addressing health disparities and improving public health in the

Caribbean and Latin America. Numerous Core Faculty are also affiliated with the GW Cancer Center, a collaboration of the George Washington University and the GW Hospital, The GW Cancer Center incorporates all existing cancer-related activities at GW, with a vision to create a cancer-free world through groundbreaking research, innovative education, and equitable care for all. The Center is committed to working toward equity throughout its enterprise and reaching out to communities across the D.C., Maryland, and Virginia metro area to provide access to critical services and innovative trials.

The Department has one doctoral program in the area of Social and Behavioral Sciences and Health Behavior and four Masters programs including in the areas of Community Oriented Primary Care, Public Health Communication and Marketing, Health Promotion and Maternal and Child Health.

2.7 The Department of Biostatistics and Bioinformatics (DBB)

[The Department of Biostatistics and Bioinformatics \(DBB\)](#) was founded in 2019 elevating the SPH's commitment to the quantitative sciences and supporting the university-wide focus on science, technology, engineering and math (STEM). The DBB's vision is to improve public health through excellence in education and teaching in biostatistics and bioinformatics, transformative scientific research, and dedicated service to the university, profession and community. With faculty that have received more research funding than any other department at the university, the Department educates the next generation of leaders in biostatistics and bioinformatics by providing opportunities for close interactions with award winning faculty and practical real-world training opportunities in clinical trials, observational studies, diagnostic studies, statistical consulting, and bioinformatics and computational biology. Academic programs include PhD, MS, and BS programs in Health Data Science; MPH and BS/MPH programs in Biostatistics; and an undergraduate minor in Bioinformatics. DBB faculty are engaged in a diverse research portfolio that includes areas such as diabetes, infectious diseases including antibacterial resistance and COVID-19, Alzheimer's disease and mental health, maternal-fetal medicine, cardiovascular disease, emergency medicine, and oncology. Methodological interests of the faculty include the design and analyses of clinical trials, SMART trials, pragmatic trials, the desirability of outcome ranking (DOOR), and benefit: risk evaluation; causal inference; cost-effectiveness evaluation; machine learning; missing data; longitudinal data; diagnostic evaluations; functional time series; and research in educational approaches in biostatistics, bioinformatics, and health data science. Faculty from the Department provide leadership of several important research entities within the GWSPH including the renowned Biostatistics Center (BSC; [see section 2.8 below](#)), the Computational Biology Institute (CBI) and the Biostatistics and Epidemiology Consulting Service (BECS).

2.7.1 The Computational Biology Institute (CBI)

Located within the DBB, [the Computational Biology Institute \(CBI\)](#) brings together leading faculty in computing, health, engineering, and biology to harness vast and diverse information, opening new doors of discovery that have the potential to benefit millions of people. The CBI is also maximizing the University's unique relationships in the nation's capital to form research

partnerships and spotlight cutting-edge topics that may influence future U.S. and international policymaking. By blending its own skills with the expertise of engineers, mathematicians, statisticians, clinicians and others, the CBI is contributing to knowledge and resources for use by researchers on a global scale, influencing how the world uses science and technology to solve its most pressing problems. With these truly incomparable resources and expertise, the CBI performs cutting-edge research and helps raise awareness of scientific advancements that improve our health, environment and overall quality of life. The CBI has developed a 4,000 square foot collaborative research space for interdisciplinary interactions and sharing of ideas complete with state-of-the-art technology to facilitate such collaborations all housed in the interdisciplinary Science and Engineering Hall on the GW Foggy Bottom campus. The space houses faculty, postdocs, research associates, visiting faculty, graduate students, and undergraduate researchers. Additionally, the GW Division of Information Technology staffs the CBI with a full-time HPC expert in genomics applications.

2.7.2 The Biostatistics and Epidemiology Consulting Service (BECS)

[The Biostatistics and Epidemiology Consulting Service \(BECS\)](#) provides biostatistical, epidemiological, and study design support for health-related research projects. The BECS addresses statistical needs of small- to medium-sized observational, epidemiological, and laboratory studies as well as small clinical trials.

The priority services of the BECS are:

- Pre-award consultation on best practices for biostatistical methods, sample size selection, and study design for health-related grant proposals,
- Pre-award statistical analysis assistance (by faculty and/or graduate students in biostatistics and epidemiology) of preliminary data to support a grant application.
- The BECS offers BECS Quick Clinic which is a free resource for GW-based faculty, medical residents, fellows, and staff working with GW faculty to handle health-related statistical and data management inquiries with quick turnaround.

2.8 Biostatistics Center (BSC)

Founded in 1972 and located in proximity to the National Institutes of Health (NIH), the Biostatistics Center has a 51-year history of leadership in practice-changing clinical trials and biostatistical methodology research. With a vision to improve public health and clinical practice by conducting transformative scientific research, research studies conducted by the Biostatistics Center have been: recognized in reports to the United States President and Congress, cited in reports from the United States White House, recognized in Time Magazine's The Year in Medicine, named the #1 advance in medicine by the Harvard Health Letter, received the Society for Clinical Trials "Trial of the Year" Award, received the Norman F. Gant Award for best research in maternal medicine, twice recognized in Clinical Research Forum's Top Ten Awards, served as the basis for the National Diabetes Prevention Program adopted by the CDC, featured in People magazine, twice recognized in "Drazen's Dozen", and resulted in more than 65 publications in the New England Journal of Medicine. A detailed video presentation of the

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Center's history including the impact of the Center's studies and methodological research, the Center's illustrious faculty and researchers, the education of students, and the career development of re-searchers can be found here:

https://biostatcenter.gwu.edu/50anniversary_address

The Center has a staff of approximately 120 with more than 45 biostatisticians/epidemiologists that includes more Fellows of the Society for Clinical Trials (SCT) than any other institution. Twenty faculty members at the Center provide biostatistical leadership and manage approximately \$48 million annually for projects in medical areas such as diabetes, maternal fetal medicine, infectious disease, cardiovascular disease, and cancer. Currently, twenty employees at the Biostatistics Center are enrolled in academic programs at the GWU. Three faculty members at the Biostatistics Center are currently leading dissertation advisors for doctoral students, while three others are serving on doctoral dissertation committees.

The Director of the Biostatistics Center is Dr. Scott Evans, founding Chair and Professor in the Department of Biostatistics and Bioinformatics.

More information about the Center and its 50th anniversary can be found at:

<https://gwtoday.gwu.edu/gw-biostatistics-center-marks-50-years-transformational-research>,

https://www.sctweb.org/newsletter.cfm?pdfpass=2023_vol34.3_Mar.pdf,

<https://biostatcenter.gwu.edu/>

The Biostatistics Center Vision and Mission:

- To improve public health and clinical practice by conducting transformative scientific research.
- Provide leadership and expertise in the execution of clinical trials, observational studies, and diagnostic studies.
- Foster biostatistical science by developing and implementing innovative approaches for the design, conduct, analysis, and reporting of clinical research studies; and
- Provide training and education relevant to clinical trials and other clinical research.

For further information about the Center, please see: <https://biostatcenter.gwu.edu/>

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SECTION 3: Physical Resources

The school has physical resources adequate to fulfill its stated mission and goals and to support instructional schools. Physical resources include faculty and staff office space, classroom space, student shared space and laboratories, as applicable.

GWSPH Facilities & Other Resources

GWSPH occupies space in five buildings across the District of Columbia, Maryland and Virginia. The main GWSPH building is the Milken Institute School of Public Health at 950 New Hampshire Avenue NW in DC. Opened on May 15, 2014, this facility houses a variety of spaces for students, faculty and staff. The nine-story building features a number of healthy design features such as a central staircase to promote walking between floors, bike rooms, water bottle filling stations, all person restrooms, a family care room (one of the first of its kind at the university), standing desks and other furniture that meets the needs of employees and staff and a caregiver suite. The building has a platinum rating under the Leadership in Energy and Environmental Design (LEED) Green Building Rating System of the US Green Building Council (USGBC). Sustainable features in the building include a rain-water collection system, terracotta panels, an HVAC system with chilled beam and mass air displacement technologies, an enhanced storm water management system to reduce stormwater runoff by more than 25%, a green floor, low-flow plumbing fixtures, energy-saving lighting controls and numerous local, rapidly renewable and recycled content materials. In 2017, it won the [COTE® \(Committee on the Environment\) Top Ten award](#) from the American Institute of Architects.

Research labs and the Department of Biostatistics and Bioinformatics are housed on the seventh floor of the Science and Engineering Hall on the Foggy Bottom campus in DC. The Science and Engineering Hall stands at the intersection of the university's commitment to cross-disciplinary collaboration, investment in STEM, and research objectives. The largest academic building dedicated to the fields of science and engineering in the nation's capital meets the needs of GW's growing research portfolio and serves as a hub for discovery, providing new opportunities for cross-disciplinary collaboration. The public health floor has 15,260 square feet of lab space, a 1,700 square foot teaching lab in addition to a 1,000 Square foot multifunctional interactive 30-seat classroom, 3 conference rooms, 86 cubicles for lab researchers and post doc staff and 26 faculty offices. The labs will support the many research projects in the school including virology, environmental and occupational health, analytical chemistry, and the Antibiotic Research Center. In addition to specialized equipment within the large labs, there is a BSL 3 core lab on the east side and a DNA sequencing core on the southeast corner of the space. A spiral staircase will link the public health floor with the School of Medicine's Cancer Center medical floor encouraging workflow between the two schools. The seventh floor also has an outdoor terrace with a green roof with capacity for 30 people that can be accessed from the West Side.

Located at 800 22nd Street NW, the eight-story building features highly specialized core lab facilities, such as a three-story high bay and a nanofabrication suite. It also includes world-class teaching spaces designed for a more hands-on approach to learning, two levels of program space and ample student lounge and study space. Event spaces include the green wall space and Lehman Auditorium.

Several GWSPH offices and research groups are housed at 2175 K Street NW on the second and fifth floors. Located across Washington Circle from the Milken Institute GWSPH building, 2175 K Street NW is a LEED Gold Certified building that has a state-of-the-art solar system that screens the existing façade and provides passive solar energy. Non-GW offices and

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organizations, including the US delegation of the European Union, are also located at 2175 K Street NW.

GWSPH operates several research labs and clinics. These include, but are not limited to, the Biostatistics Center is located in Rockville, Maryland, and the Public Health Research Clinic, run by the Department of Epidemiology, at 2021 L Street NW in Washington, DC.

3.1 Faculty Office Space

The majority of GWSPH full-time faculty have dedicated office space in one of the GWSPH facilities. For part-time and fully remote faculty, shared faculty offices are provided, along with open cubicles and shared workspaces in most buildings. Each building has security personnel in the lobby and GWorld cards must be shown and worn at all times. Public spaces are generally unlocked during normal business hours. After-hours access is available for GWorld card holders, with appropriate access. Spaces containing research or student confidential information are locked when not occupied.

3.2 Staff Office Space

Staff occupy space across all GWSPH buildings with the majority being located in the Milken Institute GWSPH building and 2175 K Street NW. Physical space allocation is dependent on a variety of factors such as remote work schedule, job title and job role. Staff occupy a mixture of cubicles and enclosed offices. Shared workspaces (e.g., offices, cubicles, conference rooms and open lounges) are also available.

3.3 Classrooms

Most classes are held in the Milken Institute GWSPH building's fourteen classrooms and two lecture halls. The ground floor of 950 New Hampshire Avenue NW includes a 227-seat auditorium as well as a separate convening center that allows the school to host a variety of conferences and academic events. The convening center is a multipurpose, flex space that can be used for large events or partitioned into up to four spaces for classes.

Because of the sizable growth in all of our programs, classroom spaces also utilized include those located throughout GW's Foggy Bottom campus. Following the pandemic, the GWSPH has made significant capital investments into updating the technology in all learning spaces. All academic spaces are outfitted with advanced audio-visual equipment that allows for virtual attendance/participation and lecture recording through [GW Lecture Capture](#), that create hybrid learning spaces that accommodate the current learning environments of our students. This equipment is updated to provide faculty and students with the latest classroom technology. For example, the convening center underwent audiovisual renovations to upgrade existing four-partitioned multipurpose meeting and events center spaces with various video sources and audio sources, web conferencing, and control systems. These rooms are able to function individually or in any combination depending on the position of room partitions which makes this flexible space attractive for both internal and external events that are hosted at the GWSPH due to the unique technological capabilities of the room.

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Many spaces feature moveable furniture to create a flexible classroom where professors and students can customize the environment that best facilitates learning.

3.3.1 Classroom Technology

GW Information Technology supports more than 600 technology-enhanced classrooms and labs on Foggy Bottom, Mount Vernon, and Virginia Science and Technology campuses. These learning spaces are equipped with innovative technology, which enhances the teaching and learning experience at GW.

3.4 Shared Student Space

Shared spaces for student meetings, study and collaboration are available in the Milken Institute GWSPH building on all nine floors. During the development of the building, GWSPH focused considerable investment in the availability, and later the decorating, of common areas and study spaces for students. Activity and breakout areas accommodate both undergraduate and graduate students. Congregating spaces contain a mix of comfortable chairs, tables, booths, bars and sofas for lounging, working and eating. Three of the upper floors have kitchens available to students with microwaves, sinks, refrigerators and vending machines dispensing health-conscious snacks. Electrical outlets are readily available as well as free WIFI. Apple desktops and printers are available for students free of charge on select floors. Over 400 lockers are available on a first-come-first-serve basis and students may bring a lock to protect their belongings. On the seventh floor, an interfaith meditation space is available for students who would like to pray or meditate in seclusion. Showers, a gender-neutral bathroom, caregiver suite and locker rooms are available in the basement, near the exercise rooms. During final exams week, the convening center on the ground floor is converted into a study hall with fidgets, snacks, water and stress-relieving entertainment for the students.

3.5 Meeting and Conference Facilities

Located on the first floor of the SPH, are an auditorium (seats 2257), a convening center with four connecting rooms, and a pre-conference space for receptions. Additionally, two large lecture classrooms (seats 10,090), one executive case room (seats 75) with computer plug-in capacity and tiered audio-equipped seating, 14 classrooms (seats 20-50 each), and seven conference rooms. All of these amenities serve as a venue for continued research and collaboration with a wide variety of government and non-governmental organizations.

The University campus provides several large auditoriums, meeting rooms, and access to hotels for our school to host meetings and conferences. The GW School of Media and Public Affairs building features a 258-seat auditorium designed to attract media events and newsmaker studio for faculty members to hold media interviews. Additionally, the building is equipped with fiber optic networking, Internet access, and teleconferencing classroom. The Cloyd Heck Marvin Center is the George Washington University's campus community center, regularly used by SPH faculty and staff to host meetings.

3.6 Science and Engineering Hall (SEH)

The Science and Engineering Hall (SEH) meets the needs of GW's growing research portfolio, serving as a hub for discovery and providing opportunities for cross-disciplinary collaboration. The building includes functions from the SPH, the School of Medicine and Health Sciences Cancer Center, the School of Engineering and Applied Science, plus the Columbian College of Arts and Sciences' physical science departments. The SPH's seventh floor contains 15,260 square feet of lab space, a 1,700 square foot teaching lab, 3 conference rooms, 86 cubicles for lab researchers, and 26 faculty offices. The SEH building is designed with shared common areas outside all labs, banks of workstations, and a spiral staircase that links the public health floor with the medical floor to allow for workflow between both schools. The SPH labs support diverse research projects in the school including virology, bacteriology, environmental and occupational health, analytical chemistry, and toxicology. Both the Computational Biology Institute (CBI) and the Antibiotic Resistance Action Center (ARAC) are located in the Science and Engineering Hall (SEH). In addition to specialized equipment within the large labs, there is a 1,200 square foot BSL-3 laboratory and a DNA sequencing core.

3.7 University Campus Locations

3.7.1 Foggy Bottom Campus

The 115,000 square foot Milken Institute School of Public Health building houses all seven departments and includes nine flexible modular classrooms equipped with technology to supplement teaching and collaboration of small groups. There are five high-capacity classrooms with digital projectors and lecture capabilities along with a single 75 seat "Case Room" with individual microphones for each seat. Two 75 seat lecture halls and one 220 seat auditorium round out the teaching facilities. The basement level houses one of two fitness testing facilities, the other being located on the Virginia Science and Technology Campus.

The School of Medicine and Health Sciences (SMHS) Classroom Services supports the technological and educational needs of the faculty, staff, and students through 35 different classrooms, with seating sizes ranging from 8 to 180. They provide a multitude of services structured to support the teaching, learning and research needs of the SMHS community. Videoconferencing, equipment loan service, and on-site technical support are just a few of the services available. They coordinate scheduling, AV and technical support for learning spaces.

- **Audio Conferencing** - Polycom Soundstation
- **Video Conferencing** - Polycom Realpresence, MondoPad, WebEx, Skype

The rest of the Foggy Bottom campus has 14 locations with classrooms. The number of classrooms ranges from 3 – 19, with seating capacity ranging from 15 - 293. List of equipment and software in each classroom can be found here:

- University Classroom Reservation

GWSPH Facilities & Other Resources

- SPH Classroom Reservation
- Science & Engineering Hall Classroom Reservation
- School of Medicine & Health Sciences Classroom Reservation

3.7.2 Mount Vernon Campus

Mount Vernon Campus (MVC) is a self-contained extension of GW that contains 7 buildings with educational facilities and classrooms. MVC features Ames Hall, home to state-of-the-art teaching and learning spaces and a 125-seat lecture space. MVC also hosts Eckles Library and numerous event spaces such as Post Hall.

3.7.3 Virginia Science and Technology Campus

GW's Virginia Science and Technology Campus, located 25 miles from the University's Foggy Bottom location, has grown to encompass more than 122 acres and seven buildings.

Discovery Hall contains 21,000 square feet dedicated to multi-purpose classrooms, a physics SCALEUP lab, lounge, and study spaces on the first floor and three wet lab classrooms with support spaces on the second.

Enterprise Hall is a 204,000 square foot facility that houses classrooms, computer labs, and offices. The Virginia Campus Library and the Foundation Center Cooperating Collection are located on the first floor. Several University administrative offices, the Jason Project, as well as the main data center and public art galleries are available at this location.

Exploration Hall is a 77,000 square foot research and education facility that includes classrooms, offices, many research centers, laboratories, and a computer lab.

Innovation Hall is a 71,000 square foot building that houses a number of departments, including the Office of the Dean, School of Nursing, and the Computational Biology Institute. The building also has classrooms, as well as several student lounges.

The National Transportation Safety Board (NTSB) leases an 86,000 square foot facility for its investigation training facility, which includes state-of-the-art learning spaces, an outside simulation court for accident reconstructions, and other equipment used in training accident investigators. Training and conference space is available for use by public and governmental organizations.

Research Place houses GW's Finance Division, Division of Operations Finance, and the Office of Student Financial Assistance.

The Avenir Foundation Conservation and Collections Resource Center is a support facility for The Textile Museum collections, GW's fine art collection, and the Albert H. Small Washingtoniana collection.

The Virginia Science and Technology Campus Library is a Funding Information Network (FIN) Partner of the Foundation Center, offering resources that help non-profit organizations and individuals identify sources of grants and foundation funding.

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SECTION 4: Laboratory Services

GW maintains basic and applied research science labs at both the Foggy Bottom and the Virginia Science and Technology Campuses (VSTC).

4.1 Laboratories

The two below-ground floors of the main GWSPH building house six academic laboratories for the Department of Exercise and Nutrition Sciences. Additionally, the department offers fee-based research and public testing services for GW and the greater Washington, DC metro region through the Metabolism and Exercise Testing (MET) Laboratory Service Core and the George Washington University Weight Management and Human Performance Laboratory. All laboratory facilities offer state-of-the-art exercise and clinical equipment for metabolic, body composition and human performance testing and academic training. The MET Lab Service Core, located in the basement of 950 New Hampshire Street NW serves to cultivate health-related research in physical activity, exercise physiology, nutrition and human performance by providing a readily accessible and professional space for principal investigators to engage in rigorous and reliable data collection. The Weight Management and Human Performance Laboratory uses the latest technologies to ascertain everything from metabolic rate to body composition, making it easier to plan diet and exercise regimens to maximize health.

GWSPH operates a public health research lab on the seventh floor of Science and Engineering Hall on the Foggy Bottom campus. This Biosafety Level 3 laboratory is one of the few facilities in the United States that can safely work with airborne and potentially lethal infectious agents or toxins.

During the COVID-19 pandemic, the [Antibiotic Resistance Action Center \(ARAC\)](#), which is housed in this lab, launched a study to surveillance test GW healthcare workers to see if they had been infected or developed antibodies. They developed a [COVID-19 diagnostic test](#) which was granted emergency use authorization by the US Food and Drug Administration in August 2020. The GWSPH public health research lab was the main COVID-19 test processing site for the entire GW community. The lab also houses the [Genomics Core](#) which is a full-service next-generation sequencing (NGS) core lab, capable of providing project planning, nucleic acid extraction, library preparation, quality control, Illumina and Oxford Nanopore Technologies sequencing, as well as other lab services upon request., the Genomics Core also offers bioinformatics consultations and analysis services.

4.2 Metabolism and Exercise Testing Service (METS)

The Exercise and Nutrition Sciences Department (EXNS) at George Washington University houses [the Metabolism and Exercise Testing Service \(METS\)](#) that includes a laboratory research service center and a public testing program within the Milken Institute School of Public Health located in Washington, DC on the Foggy Bottom campus. The METS offers state-of-the-art exercise and clinical equipment for metabolic, body composition, and human performance testing and training protocols. The facility houses five individual laboratory spaces: two Body Composition & Resting Metabolism Laboratories, the Exercise Physiology & Human Performance Laboratory, the Kinesiology & Neuromuscular Performance Laboratory, and the Prevention, Care, Assessment, & Treatment (PACT) Laboratory. The METS offers fee-based research and public testing services to the GW community and the greater Washington DC metro region to fulfill its mission to cultivate and translate public health-related research initiatives in physical activity, exercise physiology, nutrition, and human performance by providing readily accessible and professional spaces for rigorous and reliable data collection.

For assessing body composition, the laboratory spaces currently contain two full-body dual energy X-ray absorptiometry devices (GE Lunar iDXA) for body composition and bone density measures (whole body and segmental capability); two bioelectrical impedance devices (one In-Body 770 and one In-Body 720 (multi-frequency BIA, whole body and segmental analytical capability) for body composition, body water status [total, intracellular, and extracellular] and cellular damage; one air displacement plethysmography unit (Bod-Pod) for body composition, body density, and surface area; and eight Lange skinfold calipers for body composition assessment.

For assessing resting and exercise metabolism and performance, the labs contain three metabolic carts (two Cosmed Quark CPET units and one ParvoMedics unit for resting metabolism, maximal aerobic capacity, and spirometry); one Cosmed Quark CX12 12-Lead Electrocardiogram (ECG) system for stress testing and maximal cardiorespiratory testing; two Korr REEVue resting metabolic rate analyzers (oxygen-only sensing capability); four motorized treadmills (two Woodway treadmills [one w/adjustable handrails to best accommodate clinical and youth participants] and two Trackmaster motorized treadmills) for aerobic training, submaximal and maximal aerobic testing; one Woodway self-propelled treadmill for running-based anaerobic power testing, gait analysis, aerobic/anaerobic training; four upright cycle ergometers (one Velotron [electromagnetically braked], one Monark LC6 [electromagnetically braked], one Monark 939E [electromagnetically braked], and one Monark 894-E Peak Power [weight braked]) for cycling anaerobic power testing, submaximal and maximal aerobic capacity, and anaerobic/aerobic training; one Schwinn Airdyne for aerobic/anaerobic testing and training; one Monark 881E Upper Body Ergometer for upper body anaerobic power testing, submaximal and maximal aerobic capacity, and anaerobic/aerobic training; and one Concept 2 rowing ergometer for aerobic/anaerobic testing and training.

For assessing muscular strength and endurance, the labs contain two Olympic weight lifting platforms with two sets of Perform Better Olympic bumper plates for muscular strength and power testing/training integrated with two fully-equipped Sorinex squat racks w/benches for

muscular strength and power testing/training; four selecterized and adjustable Sorinex cable pully systems for muscular strength and power testing/training; one Keiser functional trainer air pressure resistance system for muscular strength and power testing/training; 4-28kg series of Perform Better kettlebells for strength and power testing/training; one Hawkin Dynamics bilateral force platform for force application, power, and symmetry analysis; various sandbag weights for strength and power testing/training; four adjustable 5-50lb Power Block dumbbells for strength and power testing/training; one Zeus isometric mid-thigh-pull-rig for strength and power testing/training; one Tendo neuromuscular testing unit for velocity and power testing/training; two Jump Mats for vertical power testing; four Functional Movement Screen (FMS) test kits for movement quality assessment; four Motor Control Screen (MCS) kits for upper and lower body motor control assessment; two Y-Balance (YBT) kits for upper and lower body motor control, stability, and mobility assessment; one kBox for flywheel isoinertial training; one Biodex isokinetic and isometric dynamometer for muscular strength, symmetry, and joint integrity testing/training; eight Noraxon electromyography (EMG) sensors for muscle activity assessment; one OptoGait system for gait analysis; and one Zebris pressure platform for lower body pressure assessment. For other health and fitness assessments, the labs contain two phlebotomy stations; one counter-top micro centrifuge; one normal 40 degree F refrigerator and one -20 degree F freezer for temporary sample and analyte storage; four portable Lactate Pro blood lactate analyzers; four portable One Touch Ultra Smart blood glucose analyzers; one portable Cardiocheck blood cholesterol analyzer; multiple automated blood pressure monitors; six mercury blood pressure stands with assorted cuffs/stethoscopes; one automated external defibrillator (AED), two Seca platform scale-stadiometer combination units; two wall-mounted stadiometers; and two computer workstations equipped with Nutrition Data System for Research (NDSR) dietary recall analysis software.

4.3 Molecular and Applied Physiological Sciences Laboratory

As part of the Public Health Laboratories housed on the seventh floor of the Science and Engineering Building (SEH), **Dr. Matthew Barberio** of the Department of Exercise and Nutrition Science has a dedicated lab bench space (15 linear feet), biological safety cabinets, fume hoods, and all appropriate equipment for projects involving cell culture, nucleic acid isolation and quantification, protein isolation and quantification, and other advanced molecular techniques. The Public Health Laboratory facilities consist of 15,260 square feet of lab space, a 1,700 square foot teaching lab in addition to a 1,000 square foot multifunctional interactive 30-seat classroom, 3 conference rooms, 90 cubicles for lab researchers and post doc staff and 26 faculty offices. The floor is also home to the Computational Biology Institute (CBI). In addition to specialized equipment within the large labs, there is a 1,200 square foot BSL 3 laboratory and a DNA sequencing core. The Public Health Laboratories include a centrally located 576 sq ft freezer farm that contains 15 ultra-low temperature (ULT) freezers. All of the ULT freezers are on an EIPro central monitoring system, which measures, records, and manages temperature data for each unit. In the event of a temperature deviation, users are notified via email and text message. Temperature data can also be viewed remotely by logging into the EIPro monitoring system. In addition, the school has a CryoPro liquid nitrogen dewar, equipped with a low-level liquid alarm, which can store 875 (2 ml) vials.

4.4 Food and Nutrition Assessment Service (FNAS)

FNAS provides state-of-the-art methods for dietary data collection from research participants on the second floor of GWSPH. The FNAS contains two components: 1) collection of dietary recall (in person or by telephone) data using the Nutrient Data System for Research (NDSR); and 2) nutrient analysis of food records, food frequency questionnaires, menus, and recipes. The FNAS physical space includes 2 research stations, each with a high-speed computer, monitor, keyboard, phone, headset, and desk space.

4.5 Exercise and Nutrition Science Academic Laboratory Suite

The Exercise and Nutrition Sciences Department (EXNS) also houses six academic laboratories as a part of its Academic Laboratory Suite within the Milken Institute School of Public Health. The Academic Laboratory Suite contains: the Anatomy and Physiology Laboratory, two Body Composition & Resting Metabolism Laboratories, the Exercise Physiology & Human Performance Laboratory, the Kinesiology & Neuromuscular Performance Laboratory, and the Prevention, Care, Assessment, & Treatment Laboratory. Each laboratory space is outfitted with the latest equipment and technology to facilitate an immersive and interactive learning environment at both the undergraduate and graduate educational levels. The EXNS Academic Laboratory Suite is designed to facilitate experiential learning in health, exercise, nutrition, and performance to cultivate collaborative and critical thinkers through progressive, accessible, and integrative educational spaces.

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SECTION 5: Research Centers and Core Facilities

5.1 Antibiotic Resistance Action Center (ARAC)

The *Antibiotic Resistance Action Center (ARAC)* at the SPH was created to preserve the effectiveness of antibiotics by engaging in research, advocacy, and science-based policy. ARAC is focused on finding solutions to antibiotic resistance. ARAC pairs original research with strategic communication and policy strategies to advance solutions to combat antibiotic resistance. Source: <http://battlesuperbugs.com/about/about-arac>

5.2 DC Center for AIDS Research (DC CFAR)

[The District of Columbia Center for AIDS Research \(DC CFAR\)](#) is a consortium of over 250 HIV investigators at nine DC-based collaborating institutions and organizations: American University, Children's National, DC Health, Georgetown University, the George Washington University, Howard University, Us Helping Us, Veterans Affairs Medical Center, and Whitman-Walker. DC CFAR is a part of a network of about 20 Centers for AIDS Research (CFARs) that are funded by the National Institutes of Health (NIH) throughout the United States. The goals of the CFAR

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program are to promote and support HIV research and to develop the next generation of HIV researchers.

5.2.1 Administrative Core

This core provides leadership and coordination for the DC CFAR cores and scientific working groups, promotes synergies across collaborating institutions, and supports partnerships with government, community and academic collaborators. The core promotes multidisciplinary and multi-institutional science, administrative and fiscal oversight and facilitates effective communication.

5.2.2 Developmental Core

This core supports the development of the next generation HIV researchers in Washington, DC and promotes innovative, multi-institutional, and multi-disciplinary HIV scientific research. The core provides competitive pilot award funding as well as mentoring and training opportunities to early stage and new HIV investigators, with an emphasis on women and underrepresented minorities.

5.2.3 Basic Sciences Core

This core provides services and training in relevant basic sciences to DC CFAR investigators and offers virologic, immunologic, proteomics and sequencing services and training that are designed to support basic, clinical and translational research in HIV prevention, detection and treatment.

5.2.4 Clinical and Population Sciences Core

This core provides access to services, specimens and clinical data and promotes collaborations between clinical, translational and population-based investigators. Services include consultative clinical, biostatistical, and epidemiologic study design expertise as well as culturally appropriate community outreach to populations at-risk for and living with HIV.

5.2.5 Social and Behavioral Sciences Core

This core facilitates the development and implementation of research related to the prevention, treatment and care of HIV that utilizes social and behavioral perspectives and that is innovative, theoretically driven, methodologically rigorous, interdisciplinary and high impact. The core encourages collaborations between social and behavioral investigators and their counterparts in clinical and basic sciences. It also emphasizes the development of strong relationships with community partners in the DC area.

5.3 Sequencing Core Facility

[The GWSPH Next Gen Sequencing \(NGS\)](#) Core provides Illumina high-throughput sequencing on the MiSeq instruments. Additional sequencing-related services to be offered by the Core will

include: initial consultation, library preparation and validation, sample QC, sequencing, data retrieval and processing. NGS applications include DNA Seq (Whole genome sequencing, exome capture and ChIP sequencing) as well as RNA Seq (Whole transcriptome with rRNA depletion and Transcriptome sequencing with polyA pull down).

5.4 Genomics Core Facility

[The Genomics Core at GW](#) is a full-service Next Generation Sequencing core lab, capable of providing project planning, nucleic acid extraction, library preparation, quality control, Illumina and Oxford Nanopore Technologies sequencing, as well as other lab services upon request. We also offer bioinformatics consultations and analysis services in partnership with the GW Computational Biology Institute. Our core is equipped with an Illumina MiSeq and NextSeq 2000, an ONT MinIon, a 10x Genomics Chromium Controller, a Thermo Fisher Qubit 3.0 and two SimpliAmp thermal cyclers, a Precellys Evolution Tissue Homogenizer, a DeNovix DS-11 Fx Spectrophotometer, a Covaris M220, two Agilent Bioanalyzers and a Stratagene Mx3005p qPCR System. The core is staffed with two full-time employees for sample preparation, processing, and sequencing.

5.5 Nanofabrication and Imaging Center (GWNIC)

The GW Nanofabrication and Imaging Center (GWNIC) is centrally located on GW's Foggy Bottom campus. GWNIC equipment and services are open to the GW community and external users. The GWNIC Nanofabrication Suite features equipment for lithography, deposition, etching, thermal processes, measurement and characterization. The Nanofabrication Suite in Science and Engineering Hall has approximately 5,000 square foot of Class 100 cleanroom, approximately 4,000 square foot microscopy suite, slab-on-grade construction to minimize vibrations, and passive and active shielding to prevent electromagnetic interference. The GWNIC Imaging Suites provide university-wide core resources for acquisition and analysis of microscopic images and data. Together, the suites feature light microscopy, confocal microscopy, transmission electron microscopy (TEM), scanning electron microscopy (SEM), focused ion beam scanning electron microscopy (FIBSEM) and infrastructure for preparation of microscopy samples utilizing the latest and most precise sectioning tools. The Imaging Suite at the Science and Engineering Hall is approximately 4,000 square feet, it adjoins an approximately 5,000 square foot Class 100 cleanroom, it features a slab-on-grade construction to minimize vibrations and has passive and active shielding to prevent electromagnetic interference. The Imaging Suite in Ross Hall is approximately 1,500 square foot and features lab bench space, biosafety hood, a microsurgery lab, a Vibratome for sectioning and a cell culture incubator.

5.6 Research Pathology Core Facility

[The Research Pathology Core Laboratory](#) is a research core facility housed in the Department of Pathology, Room 124 of Ross Hall. The Pathology Core Laboratory is available to provide research services for both human and animal tissues, including tissue processing, embedding, sectioning, routine Hematoxylin and Eosin (H&E) stain, and special stains, frozen sections,

optimization and performance of immunohistochemistry, and electron microscopy. Pathology consultative services are also available.

5.7 Flow Cytometry Core Facility

The mission of the [SMHS Flow Cytometry Core Facility](#) is to provide researchers access to well-maintained cytometry equipment for sophisticated cell sorting and analysis experiments, as well as services in data analysis, instrument training, experimental consultation, and cytometry education. The facility aims to promote the production of accurate, reproducible cytometry data in support of the academic and research mission of the GW community.

The core facility is open to all schools and departments of the GW community, in addition to researchers from external academic, industrial, and governmental institutes. The facility provides high quality services in cell sorting and analysis, data analysis, and instrument and software training. The Core Facility maintains 4 cytometers and a workstation for data analysis.

One Cell Sorter is a 4-laser, 15-color BD influx high speed sorter and its features include a small particle detector, 4 nozzle size options-optimal for sorting a wide range of cell and particle sizes, up to 6-way sorting and a plate with Index sorting. The core also maintains a Sony SH800z Cell

Sorter in a 4 laser, 6 color configuration with 2 nozzle sizes capable of 2-way and index sorting. This instrument is also available for independent use after training. The Cell Analyzers are a 12 color BD Celesta conventional cytometer and a Cytex Aurora 25 color spectral cytometer. Both available for independent and assisted use.

The facility provides options and training for cell analysis. A site license for FlowJo or FCS Express is available which provides the convenience of data analysis from lab/personal computers. GW flow core users are allowed one registered computer per PI/lab at no charge with additional seats available for purchase.

5.8 Biorepository Core Facility

[The GW Biorepository](#) is accredited by the College of American Pathologists (CAP). It supports investigators in the Milken School of Public Health and the School of Medicine and Health Sciences at George Washington University. The biorepository banks a diverse range of biospecimen in a secured, temperature-monitored environment staffed by trained repository technicians and informatics specialists. The biorepository has experience in specimen processing, storage, and distribution. It is supported by several collaborative awards from the National Cancer Institute, including the AIDS and Cancer Specimen Resource and the AIDS Malignancy Consortium. The GW Biorepository also supports the GW Vaccine Research Unit, processing various sample types for Phase 1-3 clinical trials. The GW Biorepository has over 100,000 biospecimens along with clinical data. The biorepository also has several Laboratory Information Management Systems (Freezerworks) and clinical data systems for annotating biospecimens (REDCap).

5.9 Biomarker Discovery and Analysis Facility

Services in [the Biomarker discovery and Analysis facility](#) include: 1) Quantitative PCR that allow analysis of transcripts in a 384 well platform and provide high quality cDNA from tissues; 2) In situ hybridization on cryostat sections and access to a library of probes targeted to neural development and pathological conditions. Facilities include quantitative western blotting, luminescence and fluorescence microplate assays, primary cell culture and electroporation systems and a cell culture and ES cell facility.

5.10 Bioinformatics Unit at Children's National

The Genomics Core partners with the Bioinformatics Unit through the [Clinical and Translational Science Institute at Children's National](#). The CTSI-CN CRI Bioinformatics Unit (CBU) provides bioinformatics consultation and analytical services in an initiative sponsored by The Center for Genetic Medicine Research, the Center for Translational Science, the Clinical and Translational Institute at Children's National (CTSI-CN), the District of Columbia Intellectual and Developmental Disabilities Research Center (DC-IDDRC) and the Chief Research Officer's office. The CBU works closely with researchers to design and structure their studies with the applicable bioinformatics support from the very beginning of a project. CBU assist in the following types of Study Consultation and Experimental Design: mRNA/miRNA Sequencing, Exome Sequencing, Whole Genome Sequencing, Microarray, Metagenomics/Microbiome Sequencing, ChIP Sequencing, Single Cell Sequencing and other customized sequencing. The CBU performs genomic data analysis with standard as well as custom pipelines according to specific requirements of a project. CBU also actively participates in training the next generation of biomedical researchers with the goal of enabling quality research and education. The bioinformatics Data Analysis services provided by CBU are De Novo Assembly, Single Nucleotide Variation Detection, Copy Number Variation, Structural Variant Detection, Fusion Analysis, Differential Gene Expression, Pathway Analysis and other customized analysis.

The McCormick Genomics and Proteomic Center (MGPC) provides wet laboratory, proteomics and computational genomics support to GW researchers. The center's focus is to harness emerging, in-house genomic, transcriptomic, proteomic, and bioinformatics knowledge to build and test new biologically relevant hypothesis.

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SECTION 6: Medical Health Facilities

6.1 Health Sciences

Uniquely positioned within the [GW School of Medicine and Health Sciences](#), the Health Sciences programs provide a training ground for the nation's experts in patient care, health care quality, medical laboratory sciences, clinical management and leadership, and numerous other disciplines. Health Sciences offers five entry-level clinical training programs (Emergency

Medical Services, Medical Laboratory Sciences, Occupational Therapy, Physical Therapy, and Physician Assistant) in addition to professional programs for advanced training in a wide range of health fields including clinical research administration, regulatory affairs, clinical management and leadership, clinical and translational research, translational health sciences, biomedical informatics, integrative medicine and health, health care quality, and disaster response. The GW Physician Assistant program is ranked 5th out of more than 300 accredited programs nationally.

Health Sciences is active in continuing education and professional development activities, operates numerous military affiliated programs, and jointly operates a health sciences academy with Alexandria, VA public schools. Health Sciences is a global leader in online and blended education, with national experts in curriculum development, instructional design, and program evaluation.

6.2 The George Washington University Hospital

[The George Washington University Hospital](#) is owned and operated by a subsidiary of Universal Health Services (UHS) one of the largest healthcare management companies in the nation. The George Washington University Hospital has approximately 385 beds, 20+ operating suites and 1 hybrid operating room along with a level III neonatal intensive care unit. The GW Hospital is accredited by The Joint Commission and licensed by the District of Columbia Regulatory Affairs Department. In 2016, there were 19,937 admissions, 25,892 surgeries, 3,395 births, 74,680 emergency room visits and 125,995 outpatient visits.

6.3 GW Medical Faculty Associates (MFA)

[Medical Faculty Associates \(MFA\)](#) is an independent multispecialty physician group practice encompassing more than 52 medical specialties. Committed to providing comprehensive, thorough and accessible patient care, MFA physicians see patients at the main campus as well as at the George Washington University Hospital and several other area hospitals and community-based medical practices. MFA physicians serve as full-time faculty of the GW School of Medicine and Health Sciences providing mentorship and teaching to medical students, residents and fellows. The MFA faculty is extensively involved in a wide variety of research activities including NIH-, foundation- and industry-sponsored studies. Research by MFA physicians includes inpatient hospital-based studies as well as studies in the outpatient setting. These studies include investigations of new oral, parenteral agents and infusion-based agents. Among the many research activities include new treatments for cardiovascular diseases, infectious diseases including HIV infection, neurologic disorders among many others. MFA surgeons are examining new devices that improve cardiovascular, neurosurgical and orthopedic conditions.

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SECTION 7: The Clinical and Translational Science Institute at Children's National (CTSI-CN)

[The CTSI-CN](#) is a partnership between Children's National Medical Center / Children's National Hospital and GW to accelerate the translation of research and dialogue into improved child, family, and community health by fostering collaborative investigations.

CTSI-CN provides members with access to:

- a. Education opportunities such as career development support, training opportunities, seminars, and symposia.
- b. Research resources that include free consultations for CTSI-CN services, reduced rates for NIH- sponsored and pilot research support, and letters of support for grant applications.
- c. Collaboration opportunities to participate in interdisciplinary research and exposure to national opportunities available through CTSA institutions.
- d. Funding for pilot award recipients and KL2 Scholars.
- e. Membership of the Society for Clinical and Translational Science.

Information about current research, upcoming events, and grant opportunities through weekly e-digests and quarterly newsletters.

7.1 Cellular Therapy Laboratory (CTL) at Children's National

The CTL is a Food and Drug Administration (FDA)-registered current Good Manufacturing Practices (GMP) facility charged with translating and manufacturing cell therapy products for use in clinical trials and stem cell transplantation. The facility is Foundation for the Accreditation of Cellular Therapy (FACT) accredited for processing of minimal and more-than-minimal manipulation products. It has expertise manufacturing a broad array of cell therapy products, including dendritic cells, T cells, cell lines, monocytes, mesenchymal stromal cells (MSCs) and genetically modified cells. In addition to manufacturing the cells, the CTL supports quality assurance and quality control functions as required by the FDA, and has a quality program that details the process by which new cell therapy protocols are transferred to the CTL, including validations, process development, training, audits, documentation, product release, and also budget creation.

7.2 Office of Clinical Research

[The Office of Clinical Research Office \(OCR\)](#) of the GW School of Medicine and Health Sciences unifies clinical research operations for the clinical faculty practice to support research growth, streamline operations and ensure regulatory compliance, as well as to assure its practices conform with GW requirements and processes. The OCR maintains responsibility for all aspects of administration and oversight of industry-designed, industry-sponsored multi-center clinical trials including contract negotiation, financial management, conduct and compliance functions. The OCR also provides education and mentoring for staff and faculty.

7.3 Workforce Development

[The Office of Research Workforce Development](#) enhances research professional skill development at all career levels, including undergraduate, medical student, postdoctoral fellow, and faculty. A searchable database of research faculty, blog and funding announcements for faculty, graduate students and postdoctoral trainees was created. Assist in development of NIH F, K, T and related mentored training activities and applications. Produces researcher on-boarding and scientific and professional development workshops, grant-writing courses.

7.4 PhD in Translational Health Sciences

[The PhD in Translational Health Sciences \(THS\) program](#) is unique among translation science doctorates, focusing on training students to conduct research that informs and promotes the movement of knowledge across clinical research, implementation, public health, and policy domains. This program prepares early career researchers and professionals to take leadership roles as change agents in rapidly evolving health care environments. Students develop expertise in complexity theory, organizational analysis, mixed methods research design, program theory and evaluation. The PhD in THS is a blended, low-residency program, meaning the program of study combines two formats: online and in-person learning activities. These formats are highly integrated, and each is essential to achieving student learning goals. This low-residency program uses a purposeful approach to blend technology, media, human interactions, and conventional instruction methods, which are chosen for their pedagogical value and integrated seamlessly so that all components of the curriculum form a cohesive learning experience. This mix of in-person and online learning strategies is designed to encourage students to continuously reflect, apply, and interact with others in a process of self-regulated learning. The program of study is structured so that students interact online with course materials, instructors, and each other throughout the semester and also benefiting from two on-campus weekends at VTSC two weekends each semester. During in-person weekends, students participate in collaborative, interactive workshops that integrate material across courses. Following five semesters of didactic coursework, students' complete comprehensive exams, a semester of dissertation proposal preparation, and continuous team science-based mentoring until defense of the doctoral dissertation.

CLINICAL: SUGGESTED GUIDANCE FROM NSF AND NIH - please remove this section before submitting: In this section provide a description of the access to the quantity and quality of clinical material that will be needed to complete the study. Description of relevant physical facilities that should be included and complementary clinical programs and/or investigators. If your proposal is one that will require patients or patient-derived materials, include sufficient documentation concerning the access to the quantity and quality of subjects/clinical material that will be needed to complete the study. A description of relevant physical facilities should be included. Additionally, if there are other complimentary programs and/or investigators available, describe them and the relevance that they have to the proposed project.

7.5 Integrated Biomedical Sciences (IBS)

The five biomedical science PhD programs in the GW School of Medicine and Health Sciences stem from the [Integrated Biomedical Sciences \(IBS\)](#) program. This interdisciplinary umbrella admissions and oversight program brings together a wealth of research opportunities at the GW School of Medicine & Health Sciences, the Columbian College of Arts & Sciences and the Children's National Hospital Health System. The common IBS core curriculum includes interdisciplinary cell and molecular biology and physiology courses, biostatistics, and professional skill courses in scientific writing, biomedical careers and responsible conduct. Foundation courses in each PhD program begin in the second semester, and still allow student flexibility. Students participate in three rotations in the first year of graduate training in order to identify a faculty research advisor. NIH T32 training grants support PhD training in Cancer Biology or HIV Persistence. Program-specific graduate program directors guide and oversee students through completion of remaining coursework, a grant-style qualifier examination, and dissertation research. Over 75 faculty members participate in one or more of the 5 PhD programs, and our current student enrollment numbers approximately 70. PhD alumni go on to research careers in academia, industry/biotech and government/nonprofit, as well as careers in science communication, science teaching and science policy.

7.6 International Medicine Programs

For over 29 years, the Office of [International Medicine Programs \(IMP\)](#) at the George Washington University (GW) School of Medicine and Health Sciences (SMHS) has cultivated global partnerships to create transformational mutual exchange in medical education, training, and research. IMP's goal is to provide life-changing opportunities to build the healthcare capacity of other countries and share the latest advances in medicine and healthcare. As a pioneer in international medical education, training, and research, IMP has developed, coordinated, and completed over 150 projects in over 50 countries, touching the lives of more than 15,000 healthcare professionals, students, and patients around the globe. IMP promotes international research partnerships by convening SMHS and international researchers at scientific summits, where they can share the latest advances in their fields and identify opportunities for collaboration. In addition, IMP partners with GW faculty to design and implement medical and research training programs both at GW and abroad. IMP further serves the SMHS community by facilitating strategic international partnerships, providing safety and security resources for SMHS faculty and student travelers, and supporting incoming international students and visiting scholars.

7.7 The IMPACT Initiative and SMART Lab

The [IMPACT Initiative](#) and SMART Lab (Supported Media for Administration, Research, and Teaching) provide assistance in curriculum and course design; eLearning design and development; and the creation of media such as videos, podcasts, and graphics. The team provides hardware, software, and personal assistance to support faculty in their curricular and research endeavors to offer modern instructional methods and state-of-the-art learning experiences.

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SECTION 8: Cancer Clinical Trials Office

[The Clinical Trials Office \(CTO\)](#) of the George Washington Cancer Center (GWCC) assists with the planning, conduct and compliance of any cancer-related clinical trials, including those using pharmacologic or radiation therapies or investigational devices, as well as non-interventional trials. The CTO is overseen by an Associate Center Director of Clinical Investigations and a Senior Administrative Director, and is staffed by nurses, regulatory personnel, data managers and study coordinators. The CTO can provide protocol support regarding scientific review, HIPAA compliance, Human Subjects protection and IRB requirements and submissions, as well as ongoing regulatory and reporting requirements. The CTO can also assist in the design, implementation and execution of investigator-initiated clinical trials and correlative studies, including blood collection and processing and tissue procurement. A state-of-the-art software package for protocol and data management is being implemented.

The Cancer Informatics Core pilot project (CIC-p) provides collaborative informatics support for cancer research, through guidance for software use and by acting as liaison for various NGS data services.

MGPC provides a rigorous, collaborative research environment that can be harnessed by the research community at GW to expand the horizons of genomic and proteomic knowledge, to open new avenues in basic and translational cancer research, and to train the next generation of bright minds in cancer genome research.

The MGPC team has valid licenses for the following commercial software tools and databases:

1. Geneious: A genome browser reference mapping and sequence assembly tool.
Features include:
 - a. NGS Analysis and Genomics
 - b. Sequence and Chromatogram Analysis
 - c. Alignment and Tree Building
 - d. Molecular Cloning
 - e. Searching, Sharing, and Automation
2. HGMD (Human Gene Mutation Database): A gold standard resource for comprehensive data on published human inherited disease mutations.
3. TRANSFAC (Transcription Factor Database): A tool that provides data on eukaryotic transcription factors, their experimentally proven binding sites, consensus binding sequences and regulated genes.
4. OncoPrint: Compute gene expression signatures, clusters, and gene-set modules, for extracting biological insights from the data.
5. MetaCore: A high quality biological systems content in context, producing essential data and analytical tools to accelerate scientific research.

6. Ingenuity® Pathway Analysis (IPA®): IPA is a powerful analysis and search tool that uncovers the significance of 'omics data and identifies new targets or candidate biomarkers within the context of biological systems. IPA may be used for the analysis, integration, and interpretation of data derived from 'omics experiments, such as RNA-seq, small RNA-seq, microarrays including miRNA and SNP, metabolomics, and proteomics.
7. OriginLab: Data analysis and graphics software to make technical charts for scientists and engineers displaying 2D and 3D pl.

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SECTION 9: Library Facilities

GW's extensive library collections are housed in the Melvin Gelman Library, the general academic library, the Jacob Burns Law Library, Eckles Library, Paul Himmelfarb Health Sciences Library, and the Virginia Sciences and Technology Libraries. These collections contain over two million volumes and over 20,000 serials and provide an extensive collection of general and specific volumes, periodicals, and papers in health services administration, health policy, business, medical care, economics, operations research, law, human resources management, statistics, and basic sciences. All are important to the SPH and are readily accessible to students and faculty.

9.1 The Himmelfarb Health Sciences Library

[The Himmelfarb Health Sciences Library](#), the primary library for the SPH, is located in Ross Hall on the Foggy Bottom campus one block from the SPH building and also serves the School of Medicine and Health Sciences and the School of Nursing. Himmelfarb Library currently provides electronic access to over 6,700 textbooks, 6,500 journals, 125 databases, and a collection of streaming videos. Himmelfarb provides extensive on-site access to online, print and audiovisual collections, as well as access to computers and study areas. Himmelfarb Library's print collection includes approximately 80,000 volumes.

Key health sciences databases include Scopus, MEDLINE/PubMed, Health Policy Reference Center, and CINAHL Complete. Students also have access to Covidence for systematic reviews management, and major interdisciplinary databases such as Academic Search Complete, ABI/INFORM Complete Plus, Business Source Ultimate, and ERIC. Himmelfarb Library provides access to electronic journals directly from publishers and through vendors such as EBSCOhost, ProQuest, ClinicalKey, Ovid, and ScienceDirect. Himmelfarb Library's collections are extended by interlibrary loan service, as well as the Consortium Loan Service which allows users to borrow from most academic libraries in the DC metro area via 2-day delivery.

Himmelfarb Library's Bloedorn Technology Center provides access to streaming videos, DVD and CD titles, anatomical models, 3D and Virtual Reality applications, and applications software

for word processing, publishing, spreadsheets, databases, and reference management and specialized software focused on medicine, the health sciences, public health, and statistical analysis. The Bloedorn Technology center also lends media equipment.

9.2 Estelle and Melvin Gelman Library

[The Estelle and Melvin Gelman Library](#), member of the Washington Research Library Consortium and Association of Research Libraries, contains over two million volumes and houses the National Security Archive and numerous special collections. It is part of the George Washington University Libraries, a trio of facilities that includes Eckles Library at the Mount Vernon Campus and the Virginia Science and Technology Campus Library in Ashburn.

9.3 Eckles Library

Located at the Mount Vernon Campus, [the Eckles Library](#) is part of the trio of George Washington University Libraries which also includes the Estelle and Melvin Gelman Library and the Virginia Science and Technology Campus Library.

9.4 Virginia Science and Technology Campus Library

[The Virginia Science and Technology Campus Library](#) is part of the George Washington University Libraries, which is comprised of two other libraries, the Estelle and Melvin Gelman Library on Foggy Bottom and the Eckles Library at the Mount Vernon Campus.

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SECTION 10: Research Integrity, Compliance and Ethics (RICE)

10.1 Responsible Conduct of Research

At the George Washington University (GW), we are committed to fostering a research environment that is guided by the highest standards of research ethics and integrity. Conducting research responsibly is crucial to producing objective and unbiased results and maintaining the public's trust as stewards of research funds.

GW encourages all of its faculty and students to be familiar with professional and ethical standards in academic research in general as well as in their chosen fields. Ongoing Responsible Conduct of Research (RCR) training is a critical part of these efforts. RCR training provides researchers with the tools they need to make ethical decisions and is also required by many federal research sponsors.

website, <https://researchintegrity.gwu.edu/responsible-conduct-research>.

10.1.1 Responsible Conduct of Research Training

Faculty and students engaged in [certain sponsored or academic research programs](#) are required to participate in RCR training. Discussion of the issues raised by this training is an important element of professional development.

RCR topics include:

- Animal Research
- Collaborative Science
- Human Subjects Research
- Intellectual Property and Commercialization
- Peer Review
- Responsible Publication, Authorship, and Copyright
- The Mentor-Mentee Relationship
- Data Management
- Research Misconduct
- Conflicts of Interests
- Reproducibility and Replicability
- The Scientist as a Responsible Member of Society

10.1.2 NSF and NIH Training Plans

Certain individuals supported on National Science Foundation (NSF) and National Institutes of Health awards must complete RCR training:

- National Science Foundation (NSF) - Mandatory for all undergraduate and graduate students, and postdocs supported on any NSF award.
- National Institutes of Health (NIH) - Students, faculty and other researchers supported on certain NIH training, career development, research education, and dissertation research grants are required to complete RCR training.

[Read more about NSF and NIH training plans](#) including who is covered and how to complete required RCR training.

10.1.3 GW Policies and Standards

GW has multiple policies and standards related to RCR topics:

- [Policy and Procedures Regarding Allegations of Research Misconduct](#), which sets forth our responsibilities for avoiding and reporting instances of research misconduct.
- [Conflict of Interest and Commitment for Faculty and Investigators](#)
- [Data Management and Protection Standard](#)

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Please note that GW also has policies regarding compliance, ethical responsibilities in conducting research, and required training for [human subjects protection](#), [animal protection](#), and [protection of health and laboratory safety](#) when working with hazardous materials.

For a list of GW polices including those focused on RCR, please see [GW's Policies](#).

10.1.4 Writing Resources

GW offers resources to assist students in being responsible writers. [GW's Code of Academic Integrity](#) administered by the Office of Academic Integrity represents our community's commitment to academic honesty. The office is available to consult on issues of academic integrity.

- [RefWorks](#) is an online tool supported by Gelman Library that helps writers organize their research and create bibliographies—and avoid inadvertent plagiarism in the process.
- The [WID Studio](#) offers a range of resources and references on writing, including guidance on avoiding plagiarism and other forms of academic dishonesty.

10.1.5 Research Administration Trainings

The Office of Sponsored Projects in the Office of the Vice President for Research conducts periodic training sessions on research administration. For a list of upcoming events please go to the [OSP website](#).

10.2 Office of Research Safety (ORS)

[The Office of Research Safety](#) is a service organization within OVPR charged with the Biological, Radiation, and Laser Safety programs. It is the primary resource for campus-wide research laboratory safety in those areas. In addition, ORS provides administrative support to the Institutional Biosafety Committee (IBC), the Institutional Animal Care and Use Committee (IACUC), and is the primary contact for federal, state, and local regulatory agencies regarding laboratory safety and animal welfare matters. Furthermore, the ORS collaborates closely with allied departments within the university (Office of Environmental Health & Safety, GWPD, Facilities Management, Risk Management, etc.).

10.3 Office of Ethics, Compliance, and Risk

The Office of Ethics, Compliance, and Risk (OECR) maintains a webpage, compliance.gwu.edu, which provides information on the key areas of responsibility which include: ethics and compliance, policies, ethical misconduct and non-compliance reporting hotline, enterprise risk management, and internal audit.

All members of the university are individually responsible for holding themselves and the community to the highest ethical conduct and complying with laws, regulations, and university

policies. Staff throughout the university have operational compliance responsibilities that are specific to their area. OECR has oversight and monitoring responsibilities of the operational compliance units to ensure compliance program effectiveness and risk mitigation in consideration of legal and regulatory requirements and compliance best practices. OECR also provides other institutional risk-based assurance services through oversight of university policies, ethics and non-compliance reporting hotline, the university's ethics program, and coordination with the internal audit, and enterprise risk management programs.

While this office is directly supervised by the President, there exists a dotted line reporting relationship to the Committee on Audit and Compliance of the Board of Trustees in support of fulfilling the independence required for the Compliance Officer and to satisfy the board's governance oversight responsibilities. OECR manages the related areas of ethics, compliance, and risk through a robust ethics and compliance program. The program meets the standards set out in the Federal Sentencing Guidelines and the DOJ's Evaluation of Corporate Compliance Programs. Standard operating procedures are available for all program elements and can be provided upon request.

10.3.1 Ethics Matter

The overall tone set by GW leadership and executive management encourages a culture of integrity and ethical behavior. The foundation is rooted in the university's *Code of Ethical Conduct*, which states that "for the university to maintain the desired ethical culture and public confidence, all persons acting on behalf of the university should maintain the highest level of ethics in all of their actions, and must comply with university policies as well as applicable laws and regulations."

GW's [Code of Ethical Conduct](#) sets forth the standards of ethical conduct to which all persons acting on the University's behalf are expected to adhere. The Code is publicized on the "Ethics" page of the [GW OECR website](#) and referenced on HR website and Office of the Provost website. The standards of ethical conduct outlined in the Code are incorporated into other codes of conduct and policies and procedures at the university. Examples of key relevant policies that incorporate the ethical standards are specifically highlighted in the document. The ethical standards relate to:

- Integrity and Respect
- Responsibility and Accountability
- Absence of Conflicts of Interest and Commitment
- Absence of Harassment and Abuse of Power
- Stewardship of University Resources
- Compliance, Reporting and Investigations

OECR, in partnership with HR, assigns Ethics Matter training to new employees within the first 30 days after hire, which provides an overview of the Code of Ethical Conduct, key university policies, and the responsibility of all community members to hold themselves and others to the highest standards of ethical and lawful conduct. Generally, undergraduate students are

introduced to the Code of Ethical Conduct via online summer training as well as it is included in orientation documents. OECR also distributes an annual communication from the President to the GW community stressing the importance of fostering an ethical culture and reporting ethics and non-compliance concerns. Additionally, an annual tailored communication for managers highlighting their heightened responsibilities to promote a culture of disclosure free from retaliation is distributed.

10.3.2 Ethics and Compliance Reporting Mechanisms

Various [reporting avenues](#) are available to the community including the EthicsPoint Hotline. OECR is available for consultation at comply@gwu.edu and 202-994-3386.

The EthicsPoint Hotline (“hotline”) is a reporting mechanism, available 24 hours a day, 7 days a week. The hotline, which includes both a phone line and online web-reporting tool, is operated by NAVEX Global and allows for confidential, anonymous reporting by the university community (e.g., violations of laws, regulations, university policies, unethical behavior). OECR reviews all items reported through the hotline to assess whether the item relates to external laws and regulations or significant violation of university policy and collaborates with other university units as needed.

Standard Operating Procedures, Investigation Protocols and bi-annual reporting to the Board of Trustees are established.

10.3.3 Conflict of Interest and Conflict of Commitment

OECR manages and administers an annual conflict of interest and conflict of commitment disclosure process for the university. Research-specific (transactional) disclosure requirements are conducted by OVPR as part of the research processes.

The university’s annual conflict of interest reporting process solicits, records, reviews and responds to disclosures made by defined members of the community (e.g., Trustees, Executives, Staff, Senior Researchers and Faculty, and former Trustees, Officers, and Key Officials). The process includes policies governing the reporting obligation, standard disclosure forms for each population with supporting documentation, thorough review, and action, and electronic repositories of information gathered. OECR partners with OVPR for coordination between the annual disclosure process and the research transactional disclosure process to support full disclosure analysis and management of a faculty or investigator. OVPR has responsibility for analyzing and addressing research related disclosures, whereas OECR has responsibility for all non-research disclosures.

Any reported conflicts (or potential conflicts) that warrant counseling or management are documented, agreed to by the parties, and held in a repository. An annual report with aggregated data on the results of COI/C program is presented to the Committee on Audit and Compliance.

OECR, in collaboration with the Procurement Department, maintains a Vendor Watch List. The Vendor Watch List includes the vendor and the individual that has a real or perceived conflict with the vendor. The list is updated annually at the end of the review cycle and in the event where a new conflict is identified. Procurement flags the vendor as conflicted and follows a process (documented in an SOP) of review to determine if purchasing is appropriate.

10.3.4 University Policies

A critical component of the university's compliance program is the development, review, update and training, communication, and enforcement of university policies. OECR maintains and publishes all university-level policies on the [OECR website](#) as well as internally within a policy management tool, OneTrust. Policy principles, common template, and process guide and workflow are established and documented for reference by the policy owners.

The annual policy review process includes an annual review, establishment of Responsible University Officials and Staff Delegates, and an emphasis on compliance plans highlighting training, communications, and enforcement plans specific to each policy. Approval for new and materially changed policies is done through a Policy Approval Board made up of members of senior leadership. The annual policy review process aims to keep all university policies updated with the current standards and guidance relevant to each policy.

Schools and departments may have procedures or guidance that are unique to their environments or activities which are outside of the university policy program.

10.3.5 Other Compliance Related Activities

From time to time, OECR facilitates working groups for addressing compliance matters that have cross-organizational implications, such as Digital Accessibility Committee, NDAA Section 889 Compliance, and Drug Free Schools Act Biennial Report development.

10.4 GW Privacy Office

The GW Privacy Office maintain a webpage, <https://privacy.gwu.edu/>, which provides information on the privacy program, policies, and training opportunities.

GW's Privacy Office plays a central role in executing the university's commitment to following best practices concerning data privacy and protection of the personal information of the GW community members. A single point of contact receives inquiries, investigates, and provides solutions working primarily with the Office of General Counsel, Office of Vice President for Research, GW Information Security, and GW Data Governance teams. The Privacy Office also uses industry, experts and peers to understand and assimilate emerging concerns, best practices, and market trends. In addition, this role is responsible for establishing, implementing and maintaining the privacy program, policies, procedures, training and monitoring compliance of such.

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The Privacy Office leads the university's data management efforts by collaborating with university stakeholders to classify data and coordinate with the Office of the Senior Vice President and General Counsel as necessary to meet regulations and laws, including but not limited to FERPA, GLBA, HIPAA, GDPR, and PIPL. In this capacity, there is a designated data privacy officer who, with the University's Privacy Manager and GW IT Security team, leads compliance efforts, including monthly and annual training, policy development, evaluation of administrative, physical, and technical safeguards of personal information, and collaborating with stakeholders to apply corrective actions where appropriate. A 15-minute FERPA course is assigned to all new hires and several HIPAA courses are assigned to specific higher risk populations on an annual basis. GW is not currently designated as a HIPAA covered entity but continues training and monitoring of operations as best practice.

The Privacy Office leads the university's data management strategy through the Statement of Privacy Principles, the Website Privacy Notice, Personal Information Privacy Policy, Data Protection Standards, and the Records Management Policy. The Privacy Office plays a key role in the Data Incident Response process, Data Loss Prevention program, and terms and condition reviews for contracts with data collection or use.

Data Management serves as a lens into the life cycle of university data, which includes the collection, use, distribution, retention, and disposal of data by the university community. The Privacy Office provides guidance to GW faculty and staff in determining how to categorize and identify which types of information need specific levels of protection, roles and responsibilities for its care, and establishing appropriate timelines for when to dispose of the information. Three to four workshops and trainings are offered virtually on a monthly basis, several on-demand courses are available in our LMS, and in-person sessions are held, as requested, to meet the needs of a particular department, in coordination with other relevant university offices.

10. 5 Office of Human Research (OHR)

[The Office of Human Research \(OHR\)](#) is the administrative support office for the GW Institutional Review Boards (IRBs). OHR has a staff component of nine (9) staff members who are all experts in various areas relating to human subjects' protection. The IRB is responsible for the review and approval of all research activities conducted by GW students, faculty and staff that involve human subjects in accordance with federal regulations and guidance. OHR assists the IRB with reviewing research projects that involve human subjects to ensure that two broad standards are upheld: first, that subjects are not placed at undue risk; second, that they give uncoerced, informed consent to their participation. Projects involving human subjects research are reviewed in the proposal stage - before subjects are recruited. Many approved projects are re-evaluated annually per the federal regulations 45 CFR 46. All study changes and promptly reportable information are reviewed via submission of supplemental applications. OHR works with investigators to modify projects to ensure adequate protection for its subjects' rights and welfare. OHR administers the GW Human Research Policy which requires all investigators and study team members to take training in Human subjects, responsible conduct of research and conflict of interest. OHR provides training opportunities and educational outreach sessions for investigators in areas relating to Human subjects.

10.6 Office of Animal Research (OAR)

The George Washington University [Office of Animal Research \(OAR\)](#), is the core or centralized laboratory animal support facility for the School of Medicine and Health Science (SMHS) and other University teaching and research programs using animals. The OAR is fully accredited by the Association for the Assessment and Accreditation of Laboratory Animal Care International (AAALAC) with continuous accreditation since April 1974. The OAR maintains an Assurance with NIH Office of Laboratory Animal Welfare (OLAW) and is registered through the USDA-APHIS. The 25,561 square foot facility is located primarily in Ross Hall in addition to Science and Engineering (SEH) Hall and occupies facility housing and support space on five floors. The core is arranged in a vertical array with floors connected by a service elevator from the basement (B1) to floors 4, 5, 6 and 7. The facility also provides an examination and treatment room, quarantine, cage sanitation, and necropsy suite.

The highly experienced and qualified OAR veterinary and laboratory animal care staff maintain eight species of research animals as well as multiple breeding colonies and provide animal care and technical support for the animal research community. The animal health care program is under the direction of a board-certified laboratory animal veterinarian who serves as the Attending Veterinarian (AV) and managed by a facility manager who oversees the trained animal technicians. Animals in each room are observed daily for signs of illness by the animal technician responsible for husbandry. Routine veterinary medical care is provided to all animals by veterinary technicians under the direction of the AV.

ANIMAL: SUGGESTED GUIDANCE FROM NSF AND NIH - please remove this section before submitting: If you will be using experimental animals, provide detailed information on the quality of your source, the relative availability of the species/strain chosen (if an uncommon one) and how the animals will be maintained. If the sex of laboratory animals is a potential source of biological variation, which requires that you include both males and females in your research, describe how each sex will be independently housed.

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SECTION 11: Institutional Commitment to Investigators

11.1 Resources for Career Development

The OVPR provides faculty with guidance and training to successfully apply for research grant funding. Research salons are designed to connect and engage GW faculty from diverse disciplines in collaborative intellectual and scholarly exchange around research-themed issues, questions and challenges. Research in GW are designed to connect and engage GW faculty from diverse disciplines in collaborative intellectual and scholarly exchange around research-themed issues, questions and challenges. Pre-award grant development Boot Camp is one of those offerings presented twice annually. Under the OVPR leadership and in tandem with the

School of Public Health's Senior Associate Dean for Research, the [Research Enhancement Unit \(REU\)](#) provides investigators at the George Washington University (GW) with services and guidance to successfully apply for federally-sponsored research funding. Regular or research faculty, and research scientists eligible to serve as PI and their graduate students may request services from the Research Enhancement Unit.

11.2 Writing Resources

The [GW Writing Center](#) offers free, peer-based support to students and faculty from across the university through 25- or 50- minute appointments, which can be in-person or virtual. We support writers at all stages of the writing process, such as choosing a topic, developing ideas, organizing, and revising. Writers working on complex projects can meet with the same consultant for four weeks or longer through the [Long-Term Project Program](#). Grammar, revision, and citation materials are available at [Resources for Writers](#).

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SECTION 12: Research Communication

To assist researchers' efforts to communicate their ideas visually, [the Office of the Vice Provost for Research \(OVPR\)](#) and [GW Communications and Marketing](#) helps in communicating research for upcoming grant awards or research publications! This allows time for media promotion, coordination with the journal on a publication date, and an embargoed press release. Through your research and expertise, you have the potential to impact the conversation around important issues of the day. One effective way of doing that is through Op-Eds and other first-person commentaries that reach diverse audiences within and beyond the academic community. Sharing your knowledge through an Op-Ed is often a great way to both draw attention to your research and work while also informing on issues important to policymakers, industry leaders, other academic researchers and the broader public.

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SECTION 13: Data Use and Management

GW policy sets forth information security standards for the protection of Non-Public Information within the University. All GW members have the duty to protect University data from unauthorized generation, access, modification, disclosure, transmission or destruction. Certain data require specialized protections, and in some circumstances, protections may be outlined through data sharing/transfer agreements with other parties, often referred to generally as Data Use Agreements (DUAs). DUAs are legally binding contracts between GW and another executing party providing for the transfer of data from the provider organization to the recipient

organization. The Office of the Vice Provost for Research (OVPR) reviews the terms of proposed DUAs so that data may be accessed and used as soon as an appropriate Data Management Plan has been approved.

Following requirements of the National Science Foundation (NSF), National Institutes of Health (NIH), and other research granting entities, Data Management Plans (DMPs) are generally required by data providers to document and address all requirements for protecting the data. Data Services Librarians in GW Libraries, in coordination with the GW Privacy Office, Information Security and Research Technology in GW Information Technology and the Office of Research Integrity (ORI), work with researchers to provide guidance and ensure appropriate data management and stewardship protocols are employed. GW's DMPTool platform provides a flexible framework for researchers to manage DMPs and get access to resources pertaining to data management. GW data management plans entail a required security review and risk assessment, ensuring that data are managed securely and consistent with relevant compliance requirements and risks.

In addition to Data Management Plans, NIH has issued the Data Management and Sharing Policy to promote sharing of scientific data. In order to better support the provenance of data management, and compliance with the NIH data sharing policy in particular, GW researchers have access to an institutional license of LabArchives Electronic Lab Notebook.

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SECTION 14: Computing Technology Resources

GW is a member of the Internet2 Network, a community providing a secure high-speed network, cloud solutions, research support, and services tailored for research and education. GW is a participant in Internet2's InCommon federated identity and access management system, providing access to many research resources and collaborative services, as well as the eduroam wireless service. Eduroam provides GW faculty, staff, and students access to over 2,500-member wireless networks in the US and over 33,000 member networks worldwide by using their GW identity.

GW Information Technology is a comprehensive shared service organization supporting all IT services and systems. In addition to central IT services available throughout GW, SPH has dedicated hardware and software platforms available. SPH hardware offerings include dedicated research platforms and file servers as well as printers, FAX machines, high-speed photocopiers, overhead and data show projectors. Access to these resources is via GW's high speed wired and wireless networks.

The software offerings at SPH are also comprehensive. All faculty, staff, and students have access to electronic mail, document storage, and collaboration software such as WebEx and Zoom. SPH faculty and staff members also have access to licenses that include an extensive

range of word processing, analytic, graphics, mapping, and presentation software such as, SPSS, Stata, SAS, Atlas.Ti, MPlus, Adobe Creative Suite, Nvivo, Qualtrics, and ArcGIS.

14.1 Armor Defense

The SPH has established a relationship with the cloud vendor Armor Defense to support a highly secure infrastructure to fulfill the research needs of our faculty, research staff and their students as it relates to high-speed data analysis, data storage, and collaborative data sharing. Armor Defense has customized a service for our SPH researchers and a secured centrally managed, cloud-based data storage service. This system supports research and applied research instruction of the SPH faculty and their graduate students and postdocs. Researchers may use the system to work with both small and large-scale research datasets and collaborate more effectively on research with colleagues and students across schools and departments. It also allows for inter-institutional collaboration in which researchers are able to collaborate and share access to data across the world. Armor Defense is certified against the HITRUST Common Security Framework (CSF) to address HIPAA compliance requirements. The Health Information Trust Alliance (HITRUST), in collaboration with healthcare, business, technology and information security leaders, has established the HITRUST CSF, a certifiable framework that can be used by any and all organizations that create, access, store or exchange personal health and financial information. Armor inherently meets the FIPS 140-2 standard.

14.2 Research Cloud

In addition to REDCap and Armor, several secure cloud computing and storage environments are customized for SPH research projects by GW IT Research Technology Services. These environments leverage AWS and Microsoft Azure depending on research workflows, system integration, and data security requirements.

14.3 StrongBox

StrongBox is a customized applications and data storage system that is dedicated to research at the SPH and their faculty, graduate students, and post-docs. Researchers (a) store and preserve their research data for future research and “training” sets for students; (b) work with both small and large-scale research datasets, and (c) collaborate more effectively on research with colleagues and students across schools and departments.

14.4 Box

GW utilizes the Box service as a primary enterprise file sharing service for online cloud storage and collaboration for GW faculty, staff and students, especially for regulated or restricted data. The Box service uses a two-step authentication process for secured system access. In addition to being an ideal platform for storing regulated, restricted, or public university data, Box can be used to securely share data with users outside GW.

14.5 High Performance Computing

For research computing in a high-performance computing (HPC) environment, GW's flagship computing cluster is Pegasus. Building on the success of GW's inaugural HPC cluster in 2013, Pegasus has been in operation since 2018 and is located on the Virginia Science and Technology Campus. Pegasus is managed by GW IT Research Technology Services. Pegasus is supported by GW institutional funds as well as cooperative support from SPH and other GW schools.

Pegasus is connected to GWU's robust fiber optic network and comprises 210 Dell compute nodes with 100Gb/s Enhanced Data Rate InfiniBand network fabric. Approximately one-fifth of Pegasus nodes are GPU-enabled, including 22 nodes with 4 NVIDIA V-100 GPUs utilizing the high-performance NVlink interconnect. Pegasus features a total of 8,112 CPU cores, 76,800 NVIDIA Tensor Cores, and 614,400 NVIDIA CUDA cores in several configurations, with a total compute specification of over 2 petaflops of single precision operation.

The Pegasus cluster has both a primary (NFS) storage system and an InfiniBand-connected high-speed scratch (Lustre) storage system, each with approximately 2PB of usable capacity, as well as access to other research file systems. Access to Internet2 is available through the Capital Area Advanced Research and Education Network (CAAREN) that is part of a cooperative community of higher education and networking technology to reduce barriers to research, education and health applications.

To enable high-speed data transfer, Pegasus also includes a Globus Data Transfer Node. Pegasus HPC storage is complementary to long-term permanent data storage through the Box platform, and GW operates Globus connectors to Box and Google Drive.

In addition to Pegasus, Research Technology Services operates Cerberus, a dedicated teaching HPC cluster that is used to support several SPH courses in research computing, and Raptor, an HPC cluster used for testing new HPC software and to be available during periodic Pegasus maintenance periods.

14.6 Research Network Storage

The GW Research Network Attached Storage ("Research NAS") service is a replicated, multi-protocol, scale-out network attached storage system that supports high-speed, secure network storage to the GW research community. This service is suitable for supporting numerous scientific applications, from high-throughput laboratory instruments to HPC systems and other research computing environments. Currently with one petabyte of capacity and replicated between the VSTC Enterprise Hall and Foggy Bottom data centers, the system is able to scale with additional demand. The Research NAS service is supported by GW institutional funds as well as cooperative support from SPH and other GW schools.

Each research group or project from member schools is provided 10 terabytes (TB) of base storage capacity, with the potential for additional allocation. By integrating with GW's Enterprise

Active Directory, file and folder permissions are managed according to group and role-based access controls, providing a strong security model for research data.

14.7 Research Electronic Data Capture (REDCap)

GW operates an instance of the REDCap ([Research Electronic Data Capture](#)) environment, a critical research support system for several projects in SPH. REDCap is a secure web application for building and managing databases, forms, and surveys and is particularly well-suited to human subject research data, including data with HIPAA compliance requirements. GW's REDCap environment is hosted on the AWS platform, providing flexible storage and scalability, and is managed by a full time REDCap Administrator. GW's REDCap uses the InCommon federated identity platform, allowing GW researchers to securely collaborate with researchers from other InCommon member institutions on the REDCap platform.

[Research Electronic Data Capture \(REDCap\)](#) is a secure, HIPAA-compliant, web-based application used for building and managing online surveys and databases. It is utilized globally in over 150 countries and across 6000+ institutions, making it the preferred database platform in Clinical and Translational Science Institutes awarded institutions, and other institutions worldwide.

GW REDCap was launched in 2020 and has since served as a research tool for over 1000 personnel. With over 800 database projects created for research and operational support, it has proven valuable for various purposes.

Features:

- No charge for current GW faculty, staff, students, and sponsored affiliates conducting clinical and translational research.
- Accessible support through email and training provided by the GW REDCap team.
- Powered by Research Technology Services (RTS).

14.8 GW IT Research Technology Services

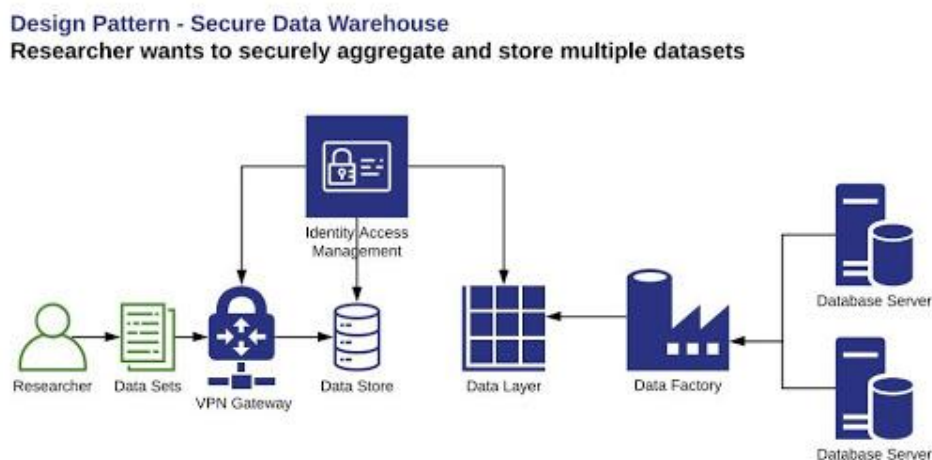
George Washington Information Technology (GW IT) provides a number of research computing services for GW students, faculty, staff and community members. These services support computationally intensive research and are designed to accelerate achievement of the university's research and education goals. These services have evolved in partnership with the schools, centers and institutes supported by both local and shared advanced infrastructure and center around enhancing GW's research competitiveness and success. RTS can also assist GW researchers by coordinating with IT Security to ensure appropriate application security and risk assessments are performed for custom applications or software deployments.

Research Technology Services (RTS) enable cross-disciplinary research by delivering shared platforms and services, as well as supporting dedicated research platforms for GW schools and research programs. RTS also collaborates directly with GW researchers, works in partnership with researchers and research administration to submit grants targeted at shared infrastructure

and next generation technology, and conducts applied research with GW, regional, and national research partners. These collaborations increase the competitiveness of GW's ever-evolving research infrastructure. In order to develop, support, and improve visibility of such services, collaboration with key service providers and campus partners is instrumental.

14.8.1 Running Custom Software Securely

For researchers who want to securely host a software application, either that they built or are providing the source code, this Software Application will be able to leverage GW's high-performance computing nodes. Jobs are submitted to GW on premise services. Below is a potential solution to this challenge.



The above solution is comprised of the components below:

- Virtual Private Network
- Application Server
- Identity Access Management
- Database Server

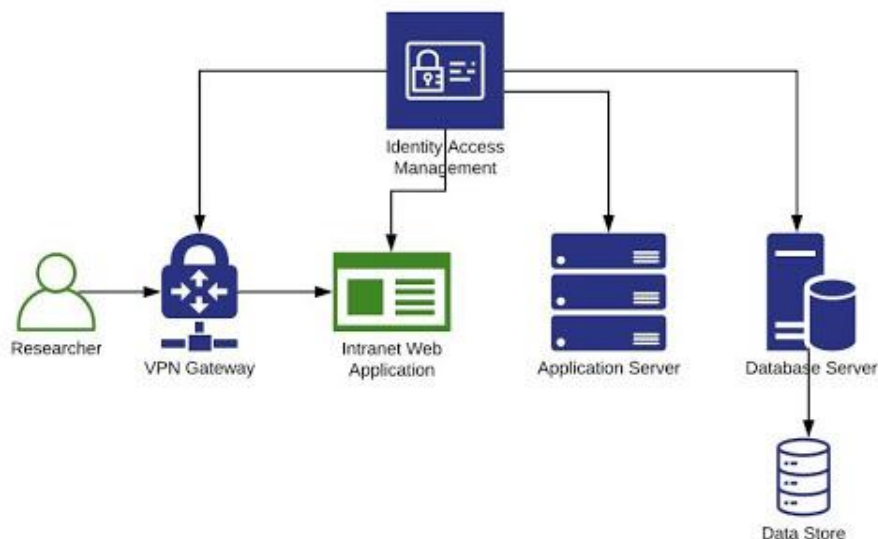
In this solution, the researcher provides the code, the code is deployed onto an existing application server on the VPN, the application is granted permissions to submit jobs to HPC (typically using SLURM).

This framework can be implemented for many potential applications, whether they are applications written by the researcher or hosted software, like Galaxy, to be used by a researcher's team.

14.8.2 Working with Data Securely

Many researchers require a space for working with and managing a repository of their data. This data usually consists of numerous sources and varying types. They need the ability to work with and aggregate data in real time.

Design Pattern - Secure Custom Application with Secure Data
Researcher wants to deploy Custom Application to access Secured Data



The above solution is comprised of these components:

- Virtual Private Network
- Identity Access Management
- Database Server
- Data Factory
- Storage Solution

Under this solution, the researcher would provide the data and the data use agreement (DUA). Data is brought into a data factory on the VPN in a tiered process. First the data is staged, uploaded or imported data is cached in data storage in accordance with the DUA. Second, the staged, or if external data is being imported in real time, is then aggregated and stored in the secure data warehouse. After the data has been brought into the warehouse, in accordance with the DUA, layers and views are made available. The researcher is allowed to grant explicit permissions to layers and views of data that have been transformed in the warehouse.

14.9 Additional GW IT and RTS Resources

14.9.1 CAAREN – Capital Area Advanced Research and Education Network

As part of its mission as a leading research institution, GW operates the Capital Area Advanced Research and Education Network (CAAREN), the region's Internet2 connecting network. CAAREN is an initiative designed to build a high-performance research and education infrastructure serving the Washington, DC and Northern Virginia areas. CAAREN facilitates world-class research, education and knowledge sharing in the nation's capital.

14.9.2 Shared Research Infrastructure

These services are built on our enterprise service infrastructure for data center hosting, networking, storage, application, and compute needs. These services are part of the standard IT service portfolio and delivered in partnership with service partners in the Libraries, Schools and external providers.

14.9.3 GW IT Security and Risk

GW IT Security & Risk is responsible for IT governance, risk and compliance. This includes establishing cybersecurity policies and best practices, providing expert consultation with regard to information security, performing security risk assessments and monitoring risk remediation, and providing support for incident response and information security forensics. All hardware and software procured by GW complete an IT Security review as part of the University's procurement process.

14.9.4 Advanced Engineering and Support Services

GW IT works with schools, business units, and researchers to identify and implement IT solutions, while addressing specific needs of the George Washington University community. Consulting services include evaluation and recommendation, provisioning, integration, management, and support.

- Enterprise Services provided by GW IT to School of Public Health
 - Desktop and Mobile Computing Support (Endpoint Management)
 - Administrative and Business Support (Enterprise Resource Planning Systems)
 - Information Security
 - Communication and Collaboration (Telephones, Conferencing, and Productivity Software)
 - Teaching and Learning (Classroom Support)
 - IT Infrastructure
 - IT Professional Services
 - Email and Calendar
 - Account Management

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SECTION 15: Additional Support

15.1 Office of Innovation & Entrepreneurship (OIE)

[The Office of Innovation & Entrepreneurship \(OIE\)](#) provides programming around innovation, education, venture creation, and making connections to support GW entrepreneurs and the Mid-

Atlantic startup community. The office has works with thousands of students, faculty, and alumni, and serves as a focal point for entrepreneurship at GW. It leverages the unique strengths of our university's schools in the nation's capital to serve society at large through the knowledge and practice of entrepreneurship.

15.2 Technology Commercialization Office

[The George Washington University's Technology Commercialization Office](#) serves as the bridge between in-house researchers and outside companies, entrepreneurs and investors. They help our experts move their inventions and ideas from the lab or classroom to the marketplace by supporting them throughout the commercialization journey. We also help companies and entrepreneurs find and access the GW technologies they need to grow their business and be successful. In this way, GW research can have an even greater impact on the world.

15.3 Student Research in the School of Public Health

In order to ensure that GWSPH students are able to respond to the health needs of the various environments under which they serve upon successful completion of their GW studies, GWSPH supports and encourages undergraduate and graduate student research projects involving human subjects. The school provides numerous opportunities within the curriculum for students to undertake research in fulfillment of their academic requirements. These include dissertation (e.g., honors and masters' projects), MPH culminating experience (CE), MPH practicum, biostatistics consulting practicum, field lab experience, independent study, internships and other classroom requirements/activities. Some of GWSPH students have the opportunity to work with Principal Investigators (PIs) for a semester and be actively involved in planning experiments, collection and analysis of data, or performing literature reviews.

These experiences are designed to increase student exposure to research and encourage enrollment in PhD programs. Much of student involvement can result in student abstract submissions plus authorship on peer-reviewed publications. The GWSPH provides financial support for meritorious research conducted by students using various mechanisms including dissertation awards. Student research achievements are recognized within GWSPH and across the University in various ways including participation in an annual GW wide Research Days event. The GWSPH takes pride in its effectiveness in training undergraduate and graduate students through high-quality research opportunities, rigorous standards, and individual responsibility. The GWSPH continues its long-held tradition and commitment to student preparation leading to careers in public health through meritorious research, allowing them to continue to make meaningful contributions to the public health field. The Office of Research Excellence (ORE) provides oversight over student research activities to ensure that they are conducted using high ethical standards and comply with federal and state regulations as well as relevant institutional policies. Students submit their project plans to ORE for review and clearance through an electronic portal that has been established for that purpose.

15.4 International Services Office (ISO)

[The International Services Office \(ISO\)](#) at the George Washington University facilitates international educational exchange through its services and programs. It serves as the primary administrative, programming, and advising office for the GW international community. International Student Advisors are available to meet with students, scholars and faculty who have immigration questions. The ISO is committed to improving the student life experience of all GW international students and scholars through programming and hosts ~80 events in a typical academic year. The ISO's programming is intentionally built around 4 support areas for international students, which include:

- Orientation and Adjustment
- Immigration Support
- Professional and Career Support
- Social and Cultural Exchange

15.5 The Student Health Center (SHC)

[The Student Health Center \(SHC\)](#) is a multidisciplinary, integrated, student healthcare service that provides outpatient confidential, student-centered care in an accessible, safe, culturally sensitive, and supportive environment.

15.6 Division for Student Affairs

[The Division for Student Affairs \(DSA\)](#) cultivates an inclusive community that supports connection, growth, and well-being for every student throughout their GW journey. DSA's integrated approach is to provide a cohesive student experience built upon four core values: approachability, collaboration, compassion, and honesty.

With distinct units including, Campus Living & Residential Education; Campus Recreation; Mount Vernon Campus; Orientation, Class Year, & Families Programs; Student Health Center; Student Life; Student Rights & Responsibilities; and Student Support, we work together to contribute to student success and belonging at GW, with our vision of "you belong here" always in mind.

15.7 Office of Alumni Relations

[The office of alumni relations](#) serves more than 320,00 alumni in over 150 countries around the globe. Connected by a shared GW experience, we strive to build a greater world through engagement and service.

15.8 Center for Civic Engagement and Public Service

The mission of the [Honey W. Nashman Center for Civic Engagement and Public Service](#) is to integrate civic engagement into George Washington University's educational work. We promote equity and active citizenship in a diverse democracy, focus GW's resources to address

community needs through reciprocal partnerships beyond the campus, and enhance teaching, learning, and scholarship at GW. The Nashman Center provides support and funding for community engaged faculty teaching and research as well as for student community engagement and social innovation.

15.9 Disability Support Services (DSS)

[Disability Support Services \(DSS\)](#) is committed to ensuring all students with disabilities have equal access to educational opportunities. DSS also serves as consultants to others who may suspect their participation in an academic program is being compromised by a disability.

15.10 The Multicultural Student Services Center (MSSC)

[The Multicultural Student Services Center \(MSSC\)](#) has developed strategies for student success through diversity education, programs, and services. MSSC emphasizes the importance of providing learning, reflecting, and connecting spaces for students around gender, race, culture, sexual orientation, spirituality, and socio-economic status.

15.11 Student Technology

GW has valuable technological services for students. These are important component of a successful academic and social experience at the University. High-speed Internet connections in the residence halls and convenient indoor and outdoor wireless hotspots (GWireless) give GW students access to many online resources. Students have access to a wide range of productivity and collaboration software such as Google Workspace, Microsoft 365, Cisco WebEx, and Zoom. For extensive technology support, GW Information Technology offers convenient walk-in and hotline hours for students.

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