Where can I find help with…

Data Management Plan

With regards to the Data Management requirement, there are a few resources on campus that can help out with this requirement – or at least point you in the right direction, I'm sure. The first is Case UTech (our internal IT department). Their Research Computing services has some info and it looks like you can request a consult with them to discuss your specific needs. Here is their site and email: its-research-computing@case.edu and https://case.edu/utech/departments/research-computing/consultation-services/data-management

Also, the CTSC (Clinical and Translational Science Collaborative) offers a Concierge Service that lists guidance on data management as an area in which they can assist. Their website is https://case.edu/medicine/ctsc/research-resources/research-concierge-service.

Finally, there are some universities that have posted templates that might be of help. If you Google NSF Data Management example, a bunch come up. Here are two that looked pretty good. The Michigan site does have an HER example in a Word doc that looks like it can guide you in writing it.

https://guides.lib.umich.edu/c.php?g=283277&p=2138498
https://data.library.arizona.edu/data-management-plans/data-management-plan-examples

Data Storage

UTech provides several cloud and on-premise (campus based) services for processing and storing research data. The following information has been prepared to publicize our service offerings and to provide guidance on their usage. For more information including how to subscribe to any of the services please contact the Research Computing team at rcci-support@case.edu or help@case.edu for 24 hour support.

**See UTECH Storage document at the end of this document

Writing Resource Center

The Writing Resource Center (WRC) provides individual support for academic writers across the university. Our writing consultants provide hands-on instruction specific to each writer's goals.
http://writingcenter.case.edu/

Statistics/Study Design

Biostatistics and Bioinformatics Core – Comprehensive Cancer Center
https://case.edu/cancer/research/shared-resources/biostatistics-and-bioinformatics
Primary focus is on projects under CCC Faculty and cancer-related projects. At their discretion, they may accept non-cancer projects for a fee. Generally $100/hour for CCC Members, $125/hour non-members

Center for Statistical Research, Computing, and Collaboration
http://sr2c.case.edu/
Fee for service core based out of the Population and Quantitative Health Sciences department. Projects are accepted as time allows and billed at an hourly rate (approximately $140/hour). They prefer to work under a contract (akin to a retainer) in which a percentage of core director's salary is paid (5-10%) and we'd get a set number of hours. Billing would vary dependent on who was doing the work – Director, Research Associates, Grad Students, etc. The VA has a contract with them which started out at 10% but backed down to 5% due to

usage. The Center would set up a scheduling website for our group and we could allocate expenses to departments based on usage.

CTSC Informatics Core
https://case.edu/medicine/ctsc/research-resources/informatics
Through the Clinical and Translational Science Collaborative, offers a variety of services on a fee basis.

CTSC Research Methods and Study Design Resources
https://case.edu/medicine/ctsc/research-resources/research-methods
Links to programs that provide guidance on optimal study design and analysis plans. These are all paid services.

UTech Research Computing + Cyberinfrastructure
Service Options for Data Storage and Archival

UTech provides several cloud and on-premise (campus based) services for processing and storing research data. The following information has been prepared to publicize our service offerings and to provide guidance on their usage. For more information including how to subscribe to any of the services please contact the Research Computing team at rcci-support@case.edu or help@case.edu for 24 hour support.

Cloud Storage Services

UTech provides the following cloud storage services for free for all students, staff, and faculty. In addition to unlimited storage capacity, each service is web based, and offers both desktop and mobile clients to allow synchronization of content to all enabled devices. Cloud storage options are well suited for word documents, spreadsheets, and other files used by productivity applications. Larger multi-gigabyte files may also be stored, but will take time to upload and download due to their size.

Box Storage
Box (https://cwru.box.com) is a secure storage and file sharing platform hosted in the cloud that will enable you to store, edit, and share files securely. Box has many benefits, including free unlimited storage, and **is the only approved cloud storage platform for storing restricted data in the cloud at Case Western Reserve University (CWRU)**. Box provides many application connectors, including Microsoft Office, that eliminate the need to share document revisions through attachments.

Google Drive
Google Drive (https://drive.google.com) acts as a cloud storage solution where you can store and share files with ease. Google Drive is also where Google Docs and Google Sheets can be created. These are fully collaborative documents that, once created, can be shared and simultaneously edited with colleagues. Team Drives are an additional feature of Google Drive that provides a shared space where teams can easily store, search, and access their files anywhere, from any device. Google Drive provides free unlimited storage, but can only be used to store internal and public data.

Campus Storage Services

UTech provides the following on-premise storage services for sponsored faculty lab use. The services are aimed at providing an ecosystem of storage services that reflect the lifecycle of research projects and their scale. Due to being on on-premise, they offer higher levels of performance than cloud services, and can be scaled to handle the complex requirements of storing instrument data while serving compute processing job files simultaneously. With the

exception of the Secure Research Environment (SRE), all storage services can only be used to store internal and public data.

Research Storage

The standard Research Storage (RS) service provides easy, reliable, and immediate access to research data from on-campus offices (as a mapped drive in Windows or an NFS mounted filesystem in Linux or OSX) as well as from the HPC cluster systems. All data is replicated between the two CWRU data centers to protect against a data center disaster and can be purchased in 1 TB increments. The system provides recovery from accidental file deletion through snapshots and maintains seven days worth of revisions.

Price: $300 per 1 TB of storage per year.

Research Dedicated Storage

Research Dedicated Storage (RDS) provides research labs dedicated storage capacity directly tied to the High Performance Computing (HPC) cluster. Faculty may purchase servers from UTech in increments of 100 TBs or more. The storage servers are NFS mounted on the HPC login and compute nodes in the /mnt/rds/ folder. All administration activities are provided by UTech Research Computing. Research Dedicated Storage can only be used for internal and public data. The system provides recovery from accidental file deletion through snapshots and maintains seven days worth of revisions.

Price: Please contact Research Computing for more information

Research Archive Storage

Research Archive Storage (RAS) provides faculty members and principal investigators a means to store data that has long-term value but is infrequently accessed. The system is designed to handle the needs of research and allows for movement of large amounts of data into an UTech managed system in a convenient fashion.

The system provides users with a defined bucket, caches the buckets on high-speed SSD storage, and determines the best method to write the data to tape in order to maximize system performance and minimize cost. The stored data is written in the open LTFS format to ensure future access. UTech recommends the use of at minimum two tapes per copy of data to ensure resilience and data integrity.

Price: $240 per 5.2 TB (two LTO-7 tapes) of capacity. Tapes will be archived for no more than 8 years and can be upgraded as needed to next generation technology.

High Performance Computing Storage

High Performance Computing Storage is a reservable, fast, parallel storage systems that can be used to provide a more permanent location for data consumed and created on the High Performance Compute (HPC) Cluster. Faculty may purchase storage of increments of 1TB or more for use with the HPCC. This service is ideal for large data sets that are used for long

running HPCC jobs that do not meet storage policies regarding storage quota allocations or scratch usage. The system provides recovery from accidental file deletion through snapshots and maintains seven days worth of revisions.

Price: $200 per 1 TB of storage per year.

Secure Research Environment

The Secure Research Environment (SRE) is a controlled environment and NIST SP 800-171 based security program. **Restricted** research data with sensitive content may be stored and analyzed inside the environment.

Price: Please contact Research Computing for more information