NSF Example

DATA MANAGEMENT PLAN

1. Products derived from projects funded by the STEP Center grant:
The main goal of this grant is to produce curricular material for use at institutions of higher learning. Products will be proposed at workshops, discussed on-line at the grant's Virtual Center, developed further by pilot grants, and then tested, peer reviewed, and published. The raw data will be online discussions, workshop proceedings, curricular units, and webinars. In thedevelopment of the curricular materials it is expected that large datasets, computer based simulations, white papers, electronic textbooks, and an e-journal will be developed. Center management decision documents will be generated, such as the minutes from meetings, policies for pilot grants and specific products that are contracted by the center (funded projects, proceedings of symposia). These will be considered as tagged descriptive meta-data. All products will be evaluated throughout their creation and peer-evaluated when the product is developed. Process evaluation will entail faculty and student surveys, interviews and in some cases focus groups. This information will be recorded in a searchable database (below).

2. Policies for managing information or data generated from the grant:
Because the purpose of the grant is to make the information collected available to the widest possible audience at all stages of development, most will be maintained as unfiltered data stream of information/participation from the community in public space (Web accessible). We anticipate that data will be saved in readily searchable databases like **REDCap database** (https://sctr.musc.edu/index.php/research-tools/redcap), which generates and analyzes surveys. The Virtual Center's online discussions will use wiki or social media and be open to all registered users, subject to restrictions of the software vendor. Peer-reviewed curricular material will be stored in a readily searchable Clearinghouse database, similar to UD's PBL Clearinghouse (http://www.udel.edu/inst/). VIVO, REDCap and the PBL Clearinghouse will considered as intermediate levels of meta-data tagging with controlled access and will be subject NSDL standards (http://nsdl.org/collection/metadata-guide.php). This means that there will be no attempt to organize it. It will be able to be parsed using structured searches and that it will not sit out in a public space (permission would be required to access it). Wiki's and social networks will use open-content standards similar to the ones developed by their vendors (e.g., the Wikimedia Foundation).

3. Policies for managing access to information or data generated from the grant:
As the Center is designed for open discussion and wide dissemination of its products, materials posted to the web site are not guaranteed confidentiality. However, to use the site an individual must register. Privacy will adhere to NSDL standards (http://onramp.nsdl.org/eserv/onramp:43/NSDL_Privacy_policy.pdf). Registration will be open to all educators and require information about their affiliations. Since data collected for evaluation purposes will be published, the use of this data will be subject to all FERPA regulations and Human Subjects policies and procedures. The REDCap software being used to collect survey results has a function to set permissions for access to the database. Intellectual property rights for products coming from this grant are recognized only when a peer-reviewed article is published online or in a journal.

A default open source license will be required (http://creativecommons.org/). Unless otherwise specified in the grant, program income received or accruing to the grantee during the period of the grant is to be retained by the grantee, added to the funds committed to the project by NSF, and thus used to further project objectives. The grantee has no obligation to NSF with respect to: 1) license fees and royalties for copyrighted material, patents, patent applications, trademarks and inventions; or 2) program income received beyond the period of the grant.

4. Policies regarding re-uses of products generated from the grant.
Redistribution and reuse will require a default license. We will use Creative Commons licensing (http://creativecommons.org/) as a system because it is organized and rational. Publications or software generated from projects funded by this grant will contain a statement like: *This (product) was produced based on work supported by the National Science Foundation* and the grant number. Articles voicing opinion or recommending a product will also include a disclaimer that the information does not reflect the opinion of or constitute an endorsement by NSF. Use of products generated from this grant must clearly recognize the developer and NSF in any subsequent publications or presentations. Similarly, remixing and adapting materials is permissible, but requires recognition of original authors.

5. Policies for archiving and later accessing information generated by the grant.
The University of Delaware Center for Bioinformatics & Computational Biology (CBCB) (http://bioinformatics.udel.edu/) will manage the server upon which the Virtual STEP Center resides. The server is backed up at regular requested intervals and the information on the backed-up copies is available for call back from any UD server. The backed-up copies are stored off site and kept for very long periods of time, limited only by the availability of software to read the files. Data on the CBCB server which is immediately available through the Virtual STEP portal will be available for 3-5 years after the termination of funding. Data from the Virtual Center will also be accessible through NSDL/BEN. Sam Donovan sits on the BEN board.