Committee on Academic Data, Data Flow and Data Management
A Committee of the UMCES Graduate Faculty Council

Report on Current Status and Future Recommendations

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Charge: The committee was appointed in December 2014 and charged with addressing questions of data collection, flow, management, and storage related to UMCES's educational efforts. To this end, the committee was asked to consider needs and recommendations for improvement in four areas: 1) faculty and graduate faculty data; 2) courses, teaching responsibilities, course delivery, course evaluations and assessments; 3) student data; and 4) alumni data. Finally, the committee was directed to prepare a report of its findings with recommendations for the collection and management of education-related data within UMCES.

The committee met twice over IVN (6 February 2015 and 11 March 2015) to discuss these issues. The first meeting focused on data collection and flow; members were then asked to research data needs and recommendations for improvement in one of the four areas. After members reported their findings, the second meeting focused on data management and storage. This report presents the committee findings, separated into the four areas.

Data Collection and Data Flow
Faculty and Graduate Faculty Data
The committee felt strongly that its charge focused on the educational activities of faculty members and thus did not consider any measures of faculty productivity relating to research activities (i.e., publications, funding). Accordingly, the committee did not discuss various options for "Faculty Activity Report" products. The committee decided that most faculty educational activities (e.g., courses taught, students advised) are captured by the other areas, as discussed below. However, there are some data not captured under the other areas, including service responsibilities (e.g., AOS chairs, Graduate Education Committee chairs at individual units) and term of appointment to the UMCES Graduate Faculty. Membership in student committees is also not captured, if only the major advisor were recorded for each graduate student.

The committee recommends that most faculty data be accessed by simply querying the related database by faculty name. However, it would be beneficial to collect data on faculty service

responsibilities and appointment term to reside in a "faculty" database. The committee recommends that fields be included in the "student" database to record all committee members, with the added benefit of including external committee members who might be missed otherwise. Also, the committee notes that data could be collected on undergraduate training (e.g., REU students, interns), if desired. These data on faculty service responsibilities and appointment terms would come from the Directors of individual units.

Courses, Teaching Responsibilities, Course Delivery, Course Evaluations
The committee found that, in practice, course offerings are currently gleaned from an e-mail sent each semester by the MEES office asking if/when faculty are teaching. Most courses are currently offered every other year; however, there are some courses that have not been taught in several years. Procedures for approval of new courses vary somewhat by unit. For example, faculty at AL submit a form through the laboratory administration, but faculty at other units submit a form directly to the MEES office. Teaching responsibilities are currently not tracked or enforced. Course evaluations are an area needing significant improvement. Currently, evaluation summaries are sent to instructors, as well as administrators at CBL, HPL, and AL; summaries are filed at the MEES office. While there appears to be a new online evaluation mechanism at USM (CourseEval), its implementation within MEES is unclear. The effectiveness of these forms is unclear, as are potential alternative mechanisms.

The committee recommends that data be collected on all MEES classes, not just those originating from UMCES, and that course-level data flow from the MEES office to UMCES. These data include a list of courses and instructors, as well as the frequency of course offerings (e.g., fall semester of even-numbered years) and/or when courses were last offered. The former likely would be more appropriate for regularly offered courses, whereas the latter would capture "one-off" courses/seminars. Thus, suggested data for the "course" database would include: course number, course name, credits, instructor, year offered, semester offered, next planned offering, frequency (e.g., spring of odd-numbered years), originating campus, method of delivery (e.g., IVN), AOS core course, AOS elective course, total number of students enrolled, number of PhD students enrolled, number of MS students enrolled. The databases could be then be queried to discern faculty teaching loads.

Course-evaluation data should also flow from MEES to UMCES, since students return the form to the MEES office and not directly to instructors. Evaluations should be quantifiable in some standardized format to allow statistical analyses. However, the committee recognizes that the most useful parts of evaluations are often the written comments, which are difficult to summarize in tabular form. If these data are to be included in a database, the purpose needs to

be clear – e.g., how do instructors improve courses based on comments – so that best practices can be implemented.

Student Data

The committee defined "student" as a student receiving a degree from a USM institution with an UMCES faculty member as primary advisor. Previous and existing data are currently housed at the MEES office and provided to UMCES. The VPE office has much of these data in multiple Excel spreadsheets, as well as thesis titles and abstracts, though data are not always broken down into individual campuses. One of the major challenges is the lack of a central point of contact for student data. While individual faculty members know their students best, it is often difficult for faculty to recall procedures given that individual faculty members often do not recruit new students every year.

The committee recommends that basic student data include: name, gender, degree, AOS, start date, UMCES unit, major advisor, undergraduate school, GRE scores, TOEFL scores, undergraduate and graduate GPA, and committee members. Data could also include: enrollment date, dates of milestones (e.g., dates of comprehensive exam, proposal defense, admittance to candidacy, degree conferred), and financial support. The committee recommends that data collection begin with acceptance to the MEES program. In general, data should flow from UMCES to MEES, with the recognition that that there will be times when bidirectional flow is needed. The committee recommends that the VPE office send an e-mail in the spring and fall to ask faculty for the names, and associated metrics, for new students.

Alumni Data

USM has a central alumni database with >1 million records; data are supplied twice a year at the college/school level. Various UMCES personnel have accessed these data in the past (David Balcolm, Dave Nemazie, and Gail Canady) and have updated the data to suit specific purposes. IMET has a separate database that includes such data as name, email, phone, fax, mailing address, current employer, AOS, year/semester of graduation, degree, advisor. The IMET database is updated every 6 months; alumni receive a quarterly newsletter. The MEES office has an alumni website and a listserv, as well as a data entry form where alumni can update their information. However, the MEES page is not linked to the home page and difficult to find. The need for continuous updating remains a major challenge for alumni data collection.

The committee discussed the definition of "alumni" and decided to focus on graduate students, since these data are likely to be used for fundraising and recruitment. However, the database could also track other personnel (e.g., faculty, post-docs, FRAs, REU students), with the simple addition of a field to indicate the classification of individual alumni. The committee

recommends that the UMCES "alumni" database be built from the USM database, noting that CA likely already has queried the USM database for UMCES-specific data. Then, fields should be added to follow the IMET model. Because the VPE office would know which UMCES students are graduating in any given semester, and the numbers are relatively few, the VPE office could add students to the database each semester. The committee recommends that an alumni newsletter and/or listserv be developed to keep alumni engaged; an online form to update information is also needed.

Data Management and Storage

In general, UMCES likely would still rely on the MEES office for most data, but alumni data could be managed more internally. The main questions with data collection are data management and security. The committee recommends that data reside in a single location, with the VPE office as the logical choice. Existing Excel spreadsheets need to be consolidated into a single database, with tables that relate by keys. The initial effort to set up the database will be cumbersome and will require a dedicated and experienced database manager. The committee strongly recommends that a skilled, central point of contact be appointed to manage these data. We suggest that the Data Manager at Horn Point be supported by the VPE office to do this; however, there may be other viable alternatives.