COLORADO SCHOOL OF MINES
EARTH ● ENERGY ● ENVIRONMENT

Tom Boyd
Associate Provost

August 12, 2015

Charge	Recommend actions that could be taken to provide better support, sustainability, and promotion for our interdisciplinary graduate programs.
Relationship to Strategic Plan	Goal 1 – Enhance distinctive identity and reputation of Mines • Create new and enhance existing large research initiatives focused on the global challenges related to the earth, energy and environment. Goal 3 – Build and diversify revenue streams and auxiliary enterprises • Diversify federal research funding across multiple agencies while increasing corporate and private research support.
Membership	Boyd (Chair), Terri Hogue, Greg Jackson, Mark Jensen, Ivar Reimanis, Tina Voelker
Context	Enrollment (~12% of total graduate enrollment in Fall 2014) in graduate interdisciplinary programs is given below:

- Materials Science - (54 total, 46 PhD) (2-CBE, 7-CH, 1-MECH, 36-MME, 8-PH)
- Hydrologic Science and Engineering - (46 total, 18 PhD) (19-CEE, 26-GE, 1-GP)
- Nuclear Science and Engineering - (22 total, 8 PhD) (3-CH, 1-MECH, 11-MME, 7-PH)
- Geochemistry - (13 total, 6 PhD) (7-CH, 6-GE)
- Underground Construction and Tunneling - (6 total, 2 PhD) (4-CEE, 2-MN)
- Interdisciplinary (OR) - (11 total, 11 PhD) (1-AMS, 2-EB, 1-EECS, 7-MECH)

These programs are heavily PhD based, and enhance size and diversity of Mines research portfolio and our institutional reputation. Programs are strongly aligned with the interests and activities of individual departments. Thus, enhancing the strengths of our interdisciplinary programs enhances the strength and identity of individual departments.

Critical issues affecting the health and success of our interdisciplinary programs include:

- Inconsistent departmental and college recognition for the value of, and support provided to interdisciplinary programs (e.g., recognition in faculty workload assignments, credit, promotion and tenure; administrative support for faculty, admissions process, and students).
- Inconsistent administrative support provided through departments.
- Need to enhance independence of interdisciplinary programs while still

1500 Illinois Street   Golden, CO 80401

MINES.EDU
T 303-273-3020
F 303-273-3040

recognizing and encouraging departmental support for these programs.
- Limited and potentially ineffective advocacy for interdisciplinary programs. Administrative structure does not "own" any interdisciplinary program. As such, Deans and DHs may or may not be effective advocates for resources being deployed to support interdisciplinary programs. Programs thrive on the basis of support provided, or withheld, by individual DHs.
- Convoluted and complicated hiring process because Departments do not necessarily take ownership of the process.
- Limited budgetary support (e.g., student, operating, etc.).
- Lack of a place/home for interdisciplinary programs - no "front door."

Recommendations

Administrative Recommendations:

- Revise organizational communication, reporting, and advocacy lines.
  - For budgetary purposes, define reporting lines of the interdisciplinary programs through the Associate Provost.
  - Associate Provost leads Interdisciplinary Program Directors Council that meets regularly to discuss program needs and issues.
  - For each interdisciplinary program, Associate Provost organizes once-a-semester meetings of relevant program leadership, DHs and Deans to discuss program health, needs and issues.
- Establish operating budgets from the general fund to support each interdisciplinary program.
  - Include budgetary support for graduate student fellowships to supplement departmental support and OGS foundation support to improve the strength and recruiting ability of each program, and to encourage faculty/departmental participation in programs.
  - Include budgetary support for program promotion (e.g., web development, brochures, travel support, etc.).
  - Include program support in the form of budgets for student hourly and adjuncts.
  - Provide small amount of support for general operating (e.g., office supplies, etc.
- Institute administrative support.
  - Provide 1 FTE of centralized administrative support. This support would supplement support already provided by Departments and provide centralized support for program promotion (e.g., recruiting support, promotional materials development, web support, etc.), some centralized reporting support, and variable administrative support across the programs.
- Encourage the listing of core courses for interdisciplinary programs with interdisciplinary prefixes unique to the program, and allow for more liberal cross listing of courses between interdisciplinary and departmental courses.

- o It is recognized that for internal reporting purposes, unique course identifiers are unimportant. Faculty instructional workloads are computed irrespective of course identifier.
  - o Unique course identifiers for programs and departments do, however, provide for unique visibility of course offerings that can be important in promoting program viability to external audiences, and course suitability to various internal audiences.
- Revise external reporting. We worked with the Director of Institutional Research to better understand how graduate metrics are reported to external agencies (see attached document). While much of the data (e.g., graduate enrollment, graduation rates, faculty, etc.) reported to external agencies are aggregated as defined by the agency, some of the aggregation we control. Based on our review of this reporting we recommend:
  - o Revise reporting to ASEE so that interdisciplinary program activity is better aligned with host department activities. Currently all interdisciplinary activity is reported to ASEE as occurring in a department named "Interdisciplinary." ASEE does allow us to report interdisciplinary activity across individual Departments.

Academic Recommendations:

- Input into the Promotion and Tenure process for faculty participating in interdisciplinary programs.
  - o Revise Handbook language to formally allow faculty to request letters of review from interdisciplinary Program Directors as part of the P&T process.
  - o Letters should be added after receipt of external evaluations, but prior to departmental review of the package.

July 23, 2015

To: T. Hogue, G. Jackson, M. Jensen, I. Reimanis, B. Voelker

From: Tom Boyd, Associate Provost

cc: T. Parker, R. Graves, M. Kaufman, K. Moore

RE: Reporting of Graduate Metrics to External Constituencies

The Office of Institutional Research and the Office of Graduate Studies provide a variety of annual reports to external constituencies that summarize the size and scope of our graduate programs. Broadly speaking, these metrics characterize our graduate efforts in terms of graduate enrollment, graduation statistics, faculty size and characteristics, and research expenditures. Additionally, in many instances the manner in which this information is aggregated and reported is dictated by the external agency.

A summary of how we report metrics related to our graduate programs is provided in the tables below.

Graduate Enrollment Reporting

External Agency/Survey ID	Importance/Use	Department	CIP Code*	Major	Notes
ASEE	Accessable through ASEE data mining tool to ASEE members. Primary peer comparison data set.	x		x	Interdisciplinary program enrollment currently reported to "Interdisciplinary" department. We could change this to assign interdisciplinary activity to departments.
CGS/GRE	Report collects data on graduate applications, first-time enrollment, and total graduate enrollment by field across all fields of graduate study. Available through CGS/GRE reports.			x	Mines does not control report aggregation. Majors reported via CGS/GRE taxonomy and then aggregated into super majors as dictated by CGS/GRE (e.g., Engineering).
Colorado Depart. Higher Ed.	Statutory obligation. DHE produces legislative reports and documents higher education public good from these data.		x	x	Mines does not control report aggregation.
Institutional Enrollment Report	Internal report available via the Mines Website.	x		x	
IPEDS	Participation, federal requirement. IPEDS gathers information from every college, university, and technical and vocational institution that participates in the federal student financial aid programs. These data are made available to students and parents through the College Navigator college search Web site and to researchers and others through the IPEDS Data Center.		x		Mines does not control report aggregation.
Engineering Workforce Commission	AAES's Engineering Workforce Commission monitors engineering job statistics that help universities, corporations, and government set salary, hiring, enrollment, and degree trends in the marketplace.			x	Mines does not control report aggregation.
NSF-NIH	National survey of the total number of graduate students, postdoctoral appointees, and doctorate-level nonfaculty researchers by demographic and other characteristics such as source of financial support. Results used to assess shifts in graduate enrollment and trends in financial support.	x			Aggregation by "organizational unit." We have choosen departments. Interdisciplinary enrollment rolled into appropriate departments. Report allows for flexibility in reporting departments and/or programs.
Thompson Reuters	Used to produce Thompson Reuters "World Rankings."		x		Mines does not control report aggregation.
US News and World Report	Used to produce US News graduate program rankings.			x	Mines does not control report aggregation. Majors aggregated into super majors as dictated by US News (e.g., Civil Engineering).

*CIP - Classification of Instructional Programs. Generally track majors. Assigned by DHE.

Graduate Graduation Reporting

External Agency/Survey ID	Importance/Use	Data Aggregation			Notes
		Department	CIP Code*	Major	
ASEE	Accessable through ASEE data mining tool to ASEE members. Primary peer comparison data set.	x		x	Interdisciplinary program enrollment currently reported to "Interdisciplinary" department. We could change this to assign interdisciplinary activity to departments.
CGS/GRE	Report collects data on graduate applications, first-time enrollment, and total graduate enrollment by field across all fields of graduate study. Available through CGS/GRE reports.			x	Mines does not control report aggregation. Majors reported via CGS/GRE taxonomy and then aggregated into super majors as dictated by CGS/GRE (e.g., Engineering).
Colorado Depart. Higher Ed.	Statutory obligation. DHE produces legislative reports and documents higher education public good from these data.		x	x	Mines does not control report aggregation.
Institutional Enrollment Report	Internal report available via the Mines Website.	x		x	
IPEDS	Participation, federal requirement. IPEDS gathers information from every college, university, and technical and vocational institution that participates in the federal student financial aid programs. These data are made available to students and parents through the College Navigator college search Web site and to researchers and others through the IPEDS Data Center.		x		Mines does not control report aggregation.
Engineering Workforce Commission	AAES's Engineering Workforce Commission monitors engineering job statistics that help universities, corporations, and government set salary, hiring, enrollment, and degree trends in the marketplace.			x	Mines does not control report aggregation.
Thompson Reuters	Used to produce Thompson Reuters "World Rankings."		x		Mines does not control report aggregation.
US News and World Report	Used to produce US News graduate program rankings.			x	Mines does not control report aggregation. Majors aggragated into super majors as dictated by US News (e.g., Civil Engineering).

*CIP - Classification of Instructional Programs. Generally track majors. Assigned by DHE.

Graduate Faculty Reporting

External Agency/Survey ID	Importance/Use	Data Aggregation			Notes
		Department	CIP Code*	Major	
ASEE	Accessable through ASEE data mining tool to ASEE members. Primary peer comparison data set.	x			
IPEDS	Participation, federal requirement. IPEDS gathers information from every college, university, and technical and vocational institution that participates in the federal student financial aid programs. These data are made available to students and parents through the College Navigator college search Web site and to researchers and others through the IPEDS Data Center.				Mines does not control report aggregation. Total faculty only reported.
Thompson Reuters	Used to produce Thompson Reuters "World Rankings."		x		Mines does not control report aggregation.
US News and World Report	Used to produce US News graduate program rankings.	x			Mines does not control report aggregation.

*CIP - Classification of Instructional Programs. Generally track majors. Assigned by DHE.

Research Expenditure Reporting

External Agency/Survey ID	Importance/Use	Data Aggregation			Notes
		Department	CIP Code*	Major	
ASEE	Accessable through ASEE data mining tool to ASEE members. Primary peer comparison data set.	x			Reported as expenditures by Department and by Research Center.
IPEDS	Participation, federal requirement. IPEDS gathers information from every college, university, and technical and vocational institution that participates in the federal student financial aid programs. These data are made available to students and parents through the College Navigator college search Web site and to researchers and others through the IPEDS Data Center.				Mines does not control report aggregation. Reported as total institutional expenditure.
Thompson Reuters	Used to produce Thompson Reuters "World Rankings."		x		Mines does not control report aggregation. Reported by super majors as dictated by Thompson Reuters (e.g., all engineering).
US News and World Report	Used to produce US News graduate program rankings.			x	Mines does not control report aggregation. Reported as total institutional expenditure.

*CIP - Classification of Instructional Programs. Generally track majors. Assigned by DHE.