Building and Assessing a Winning Team

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A Winning Team

- Of course, we want the “best” faculty
- What does “best” mean?
- Great research, world class, eader in the field, great teacher
- Scholarship: integration of research and teaching
- Distillation of new discoveries into the classroom

The Triple Threat

- Every faculty member has to excel at research, teaching, and service

- But how do we stop the Triple Threat from degenerating to …

Research?

Why Do We Value Research?

- Because it can be measured: papers, grant dollars, patents, citations, awards
- Professional societies, with few exceptions, exist to promote research
- Research brings visibility to the institution
- Research brings in MONEY!
- It is not unusual for 85% of the budget of a state-supported university to be for research

But Faculty Also Know That…

- Teaching and service are important
- Most faculty like to teach
- Students keep a high energy level at the university
- Good teaching benefits research more than good research benefits teaching
- Many of our colleagues, whom we recognize as good faculty members, do both research and teaching well

Service

- Of course, good service is a necessity: promotion & tenure, admissions, curriculum, etc.
- Service in professional societies brings in visibility
- But faculty members cannot live on service alone

The Academy

- Dual mission: teaching & research
- Housekeeping: service

- Scholarship: integration of teaching & research for the discovery and advancement of information and learning

Building a Dual Mission Team

- Try this formula for starters…
  A. 1/3 of team strong in research
  B. 1/3 of team does both research and teaching well
  C. 1/3 of team strong in teaching

Balancing Act

- In ChemE we use the 40:40:20 rule…
  - 40% teaching
  - 40% research
  - 20% service

Hypothetical Dept.

Group	Faculty	Research	Teaching	Service
A	Alpha	70	20	10
A	Bravo	65	20	15
A	Charlie	60	30	10
A	Delta	55	30	15
A	Echo	50	30	20
B	Foxtrot	40	40	20
B	Gulf	50	40	10
B	Hotel	40	40	20
B	India	40	50	10
B	Juliet	35	35	30
C	Kilo	30	50	20
C	Lima	30	55	15
C	Mike	30	60	10
C	November	20	65	15
C	Oscar	20	70	10
Average		42.3	42.3	15.3

Merit Function

- Define a *Merit Function M* such that

$$M = w_r R + w_t T + w_s S$$

- w_i weighting factors
- R, T, S are overall measures of research, teaching, service performance

Quality and Quantity!

- Each performance rating is a *product* of a quality factor and a quantity value, e.g.

$$R = q_R \sum_i r_i$$

- q_R is a quality factor for research (0–1 or 0–100%)
- r_i is the set of quantity research metrics

Quality Factors

- Subjective … assigned by dept. review committee or chair
- Example:

  100% high quality

  80% good quality

  60% acceptable

  40% below standards

  0% no quality

Quantity Factors

- Objective
- Although selection of which ones to include and how to weight them can be subjective

Important Point!

- Overall performance rating is a product of quality and quantity.
- If either one is zero, then the overall rating is zero … duh!

Research Metrics

- Number of publications
- Number of talks
- Award dollars
- Research expenditures
- Number of citations
- Conferences attended
- Special awards

Teaching Metrics

- Student credit hours
- Overall student evaluations
- Difficulty of course load
- Teaching awards
- Curriculum innovations
- Ph.D. students graduated

Service Metrics

- Number of committees
- Committees chaired
- Special projects (ABET)
- Professional Service

Discussion

1. Each faculty member determines the values of r_i, t_i, and s_i .
2. The Dept. merit review committee and/or dept. chair determine the set of r_i, t_i, and s_i along with the quality factors q_r, q_t, and q_s.
3. A product of quality and quantity assures that both must be reasonable values to be awarded merit.

Discussion (cont.)

4. The faculty member and dept. chair determine the weighting factors w_r, w_t, and w_s.
5. The analysis includes both objective and subjective measures of performance.
6. The analysis factors in differences in activities: research, teaching, and service.
7. The weighting, quality, and quantity factors can be gamed to achieve a variety of results, thus leading to…

Reality Check

- Set aside your merit spreadsheet for a few days
- While riding home on the bus, take out a 3x5 card and do an intuitive merit analysis
- If the spreadsheet and the 3x5 card agree, you can feel comfortable that you have evaluated your people fairly.

Why Go Through All This?

- The 3x5 card method is subject to substantial bias
- A careful review of quantitative factors and assessment of quality can uncover overlooked or undervalued accomplishments.
- Arriving at the same result from different approaches helps assure a comprehensive review.