PROCEDURES FOR EVALUATION OF FACULTY MEMBERS WHO PLAY A
SUBSTANTIAL ROLE IN PRE-COLLEGE MATHEMATICS AND SCIENCE
EDUCATION (Adopted by the College of Science 7/23/92)

Promotion and Tenure cases of faculty members whose appointments carry a
substantial component of responsibility for education of precollege science and
mathematics and teachers are also reviewed by the Science Education
Promotion and Tenure Committee (SEPTC). The following procedures and the
accompanying criteria are meant both to assure high quality scholarship and to
assure faculty who choose to participate in such activities that they will be
evaluated in an appropriate manner. No faculty member will be evaluated using
these procedures without a written agreement between the faculty member and
the department head. Department heads are expected to consult with their
respective faculties before entering into such agreements.

1. Procedures: These procedures and criteria are written broadly enough so that
some faculty whose primary appointment is in the College of Education may also
be evaluated under them when appropriate.

   a. A written agreement should be reached between each individual faculty
      member and his or her department head as to what percent of the faculty
      member's time is to be spent on pre-college mathematics or science education.

   b. When the percentage agreed to in item 1 is greater than zero, and the faculty
      member wishes to be evaluated by the Science Education Promotion and Tenure
      Committee (SEPTC), appropriate papers should be submitted to SEPTC
      concurrently with or previous to submission of such papers to the Departmental
      evaluation committee. The percentage agreed to in item 1 should also be
      communicated to SEPTC.

   c. SEPTC will solicit evaluations from appropriate outside and inside referees.
      These must include scholars in the appropriate content areas who have interest
      and expertise in education, and distinguished educators who have interest and
      expertise in the appropriate content areas.

   d. Before making a formal report, SEPTC will meet with the faculty member to
      advise him or her about SEPTC's preliminary evaluation and to consult with the
      faculty member about possible further information and alternative actions.
e. SEPTC will evaluate all materials and send them, with SEPTC's recommendation, to the appropriate department head and evaluation committee. SEPTC's report will become part of the permanent record.

2. Criteria: The purpose of mathematics and science education is to improve the teaching and learning of mathematics and science. Evaluation of faculty members who play a substantial role in mathematics and science education should take into account the impact they have and, are having, and are likely to have, on the teaching and learning of mathematics and science. Both the magnitude of the impact and its direction should be considered.

Written evaluations by distinguished colleagues and others, both within and without the University, will necessarily play an important role in determining the magnitude and the quality of a professor's impact. Efforts that will be evaluated for science and mathematics education should be directed toward the systematic improvement of science and mathematics education beyond the faculty member's own classroom and advising activities. Examples of such efforts might include: scholarly works that made a contribution to improving teaching and learning, innovative textbooks that substantially impact on teaching and learning, leadership in service activities, etc., but in all cases, the magnitude and quality of the impact is the essential issue.

Further evidence of achievement may be found in the initiation and development of educational programs, in the obtaining and managing of grant support, in service on advisory and policy boards that have substantial influence, and in other similar activities.

Traditional categories (research, teaching, service) may be inappropriate for evaluating science and mathematics educators because the lines between the categories are often blurred. If these categories are to be used, however, caution must be exercised to avoid assigning creative scholarly work to the service or teaching category (where it ordinarily receives less weight in the overall process) simply because it is different from traditional research.

a. Research or its Creative Equivalent: The University of Arizona College of Science Guidelines for Judging Stature and Excellence in Research (Section II B 1) are appropriate for mathematics and science education, but some of the specifics may differ from more conventional evaluations within the College of Science.
Worthy contributions could include scholarly books that make a significant contribution, textbooks that are substantially different from, and better than, previous textbooks (if any) on a worthy subject, articles in refereed, respected journals that describe and advocate better practice or that present research results relating to learning science or mathematics, improved methods and instruments for evaluation, computer software, movie or television productions that enhance education, and so on.

No one person, of course, will make contributions in all of these ways, but any of these activities, and many similar ones, should be thought of as legitimate research or creative activities. The quality and impact of the work must be seen as the important issues.

Evaluation committees must consider with some care the actual origin of materials. If a textbook, for example, was designed and largely developed by employees of the publishing company, the "author" should receive little credit for it. If co-authored articles or books were written largely by the other authors, that fact should be considered. In situations where possibilities of this sort exist, the evaluation committee has an obligation to establish the nature and magnitude of the faculty member's contribution.

b. Instruction: In addition to the University of Arizona College of Science Guidelines for Judging Stature and Excellence in Instruction (Section II B 2) special consideration will be given to the development of new and innovative courses, and to the creation of new courseware or laboratory activities that substantially enhance existing teaching practice. Unusually strong commitment to student advising (such as being a Faculty Fellow) should be taken into account. It is appropriate to consider the career outcomes of former students, and to solicit their evaluations of the faculty member.

It is also important to recognize and evaluate activities that impact the quality of science and mathematics teaching in the schools. This includes in-service training of teachers, and the development of courses or materials that substantially benefit instruction in the schools.

c. Service: Reference the University of Arizona College of Science Guidelines for Judging Stature and Excellence in Service (Section II B 3). Because a major goal of university mathematics and science education is to improve teaching and learning in the schools, service may carry greater weight in the consideration than it does for other members of the College of Science. Such service may include scholarly contributions to professional organizations, to government and
other agencies, to the University, to the College, to the Department, to local schools, etc. It may also include speeches and workshops at professional meetings, and similar activities.

There may appear to be some overlap between "research or its creative equivalent- and -service- as used here. Many of the opportunities to provide service on a national or international level may be indicators of a distinguished reputation, and therefore of high quality research and creativity. However, speaking, service, etc., should not be taken as ipso facto evidence of research and creativity. The research and other contributions must be considered directly, and the opportunities for service taken as only on indicator of the quality of that research and creative contribution.