

Department of Science Education

Policy on Retention, Tenure, Promotion and Post-Tenure Review

I. Preamble

A. Mission Statement

The Department of Science Education has a unique mission within the College of Natural Sciences and Mathematics. Its concerns include the education and training of pre-service and in-service K-12 teachers in teaching the discipline knowledge of the science departments within the College. This effort involves broad knowledge of results from research into how people best learn and teach, and requires background in related disciplines like psychology and sociology. The Department of Science Education has a strong service component in its work, interacting strongly with local schools and the community and, when appropriate, with undergraduate education programs within the college, which may include the training of Teaching Assistants.

Major elements of the mission of the administration, faculty, and staff of the Department of Science Education are:

- to provide high quality instruction in education in science, by faculty for whom excellent teaching is a high priority, and who produce ideas and innovations which continually improve teaching and learning;
- to conduct original research that creates new knowledge, and to publish and present scholarly and creative works that advance the field of education in science;
- to supervise students in field experiences in teaching;
- to provide opportunities for students to participate in research projects with faculty who consider continuing scholarly activity a responsibility both to their students and to their discipline;
- to provide students and faculty with high quality learning and teaching environments;
- to seek external funding from public and private sources in support of our mission, providing supplements to State of California financial support;
- to provide an atmosphere and environment that encourages and supports collegial interaction among members of the campus community and that fosters learning, personal growth, and intellectual achievement.

II. Responsibilities and Procedures

A. The Candidate

The candidate has the primary responsibility for collecting and presenting the evidence of her/his accomplishments in a Working RTP Personnel Action File to the Department

Committee within the timeline established by campus policy. The procedures are specified in the College and University RTP Documents.

B. The Department

The Department's responsibilities and procedures are specified in the College and University RTP documents.

III. Criteria and Evaluation

The mission of the Department of Science Education is intimately tied to instruction and "instructionally related activities" in all its roles: research, teaching, and service. The evaluation of faculty contributions under various categories relies strongly on the candidate's Narrative to place her/his contributions appropriately in the categories of evaluation. At the same time, it is important that the evaluation committees be aware of overlapping contributions that may be difficult to separate cleanly into the three categories.

A. Criteria and Evaluation For RTP

1. Instruction and Instructionally Related Activities.

Such activities include classroom, laboratory, and field teaching; supervision of student teaching and research; development of curricula; assigned student advising, and related activities involving students.

a. Essential Criteria For Instruction and Instructionally Related Activities

Teaching effectiveness is expected to improve and reach excellence in several areas as the candidate passes through the ranks. Evaluation of teaching shall be based on multiple inputs. An important and necessary source of information is faculty/peer classroom visits. The required number and timing of such classroom visits is given in the College RTP Document. The goals for science education classes are sometimes different than those for other science classes. As such, observers may see teachers and students doing different things than typically found in college science classes. Below are examples of some questions that visitors might ask the candidate prior to an observation:

Questions for Those Observing Science Education Classes

The following questions, to be asked prior to observation, are designed to elucidate the rationale and expected behaviors for the class session.

- What are the objectives for today's class session? (What are students supposed to get out of this lesson?)
- How does this class session fit with a larger unit? (What were students doing before the lesson? What will they do in the next lessons?)
- What can I expect to see you doing?
- What can I expect to see students doing?

Items to be considered in this category may include, but are not limited to,
Pedagogical approach and method.
Student response to instructor.
Ongoing professional development as a teacher.
Ongoing professional development in the discipline.

Examples of some completed products/activities that may satisfy essential criteria are also given in the College document.

b. Enhancing Criteria For Instruction and Instructionally Related Activities

See the list of various kinds of publications to which a candidate might contribute.
Examples of some completed products/activities that may satisfy enhancing criteria in this category are also suggested in the College document.

c. Examples of Products/Activities

The Department recognizes that there can be a wide variety of activities that fulfill, complement and complete the essential and enhancing criteria. The list below is meant to be illustrative and is neither ordered nor exhaustive of the possibilities that may be considered by the RTP Committee in this category.

innovative approaches to classroom or field teaching;
publication of textbooks, laboratory manuals, and study guides;
significant participation in the supervision of student research, thesis research supervision, and the preparation of students for the presentation of such research;
obtaining external funding for teaching projects or instructional laboratories;
academic advising, if it is a significant contribution and is part of the candidate's assigned workload;
organization and participation in special scholarly activities for students
development of novel curricular materials, including multimedia, computer-based materials and the like;
assessment of one's own teaching effectiveness to improve performance in the classroom, such as by participation in workshops offered by the Center for Faculty Development, etc.;
attending, developing and offering workshops, colloquia, and other forums for the dissemination of new techniques or demonstration of novel methods to faculty colleagues;
publication or presentation at professional meetings of innovations in course materials or teaching approaches;

c. Evaluation For Instruction and Instructionally Related Activities

Assessment of teaching effectiveness shall be based on peer evaluation of appropriate materials in the candidate's RTP Personnel File, and on student evaluation forms for all courses since the last promotion or since

appointment. In addition to university forms, personally designed instruments may be used for evaluation. In both cases, if any of the forms for a given class are submitted to the RTP committee, all forms for that class must be submitted.

The RTP Committee will examine the candidate's Narrative.

Grading standards should appropriately reflect the structure and goals of the courses.

The peer committee should carefully review all evaluations of teaching effectiveness.

Emphasis in the peer evaluation of a candidate's course materials and content should be based on the quality of the materials and on their value in facilitating the learning process.

As part of the review process, a minimum of 4 class visits shall be made, as described in the College RTP document.

Supervision of students in teaching and research may be considered in this category.

Formal student advising may be considered in this category.

2. Scholarly and Creative Activities

a. Essential Criteria For Scholarly and Creative Activities

We expect candidates for promotion and tenure to have a record of scholarship that includes peer-reviewed publication. Science educators work with diverse audiences, and the list of journals below reflects this variety. University science educators routinely publish articles in journals aimed at other science educators, K-12 science teachers, K-12 administrators, college science instructors, and university education specialists. The emphasis varies from reporting research to practical applications & curriculum development. A partial list of journals is given below for guidance in evaluation.

Peer-reviewed science education research journals include:

- *Journal of Research in Science Teaching*
- *Science Education*
- *School Science & Mathematics*

There are also several international science education journals, such as the

- *International Journal of Science Education*

A number of peer-reviewed journals are aimed at the university education community,

- *Review of Educational Research*,
- *American Educational Research Journal*,
- *Educational Researcher*,
- *Harvard Educational Review*, and others

Several peer-reviewed journals exist about history & philosophy of science, for example,

- *Science & Education*.

Other peer-reviewed science education journals include:

- *Journal of Science Teacher Education*
- *Journal of Elementary Science Education*
- *Science Education International*
- *Electronic Journal of Science Education*

Peer-reviewed journals aimed at K-12 or college science teachers include:

- *Journal of College Science Teaching*
- *The Science Teacher*
- *Science Scope*
- *Science & Children*
- *CSTA Journal*
- *Science Activities*
- *Journal of Chemical Education*
- *American Biology Teacher*
- *The Physics Teacher*
- *Journal of Geoscience Education*
- Other disciplines also have practitioner journals in which science educators may occasionally publish.

Widely distributed peer-reviewed journals aimed at K-12 administrators and the general education audience in all disciplines include:

- *Educational Leadership*
- *Phi Delta Kappan*
- *Education Week*

Other teacher oriented journals include:

- *Instructor, Wonder Science, Chem Matters, Super Science.*

b. Enhancing Criteria For Scholarly and Creative Activities

See the list of various kinds of publications to which a candidate might contribute. Examples of some completed products/activities that may satisfy enhancing criteria in this category are also given in the College document.

c. Examples of Products/Activities Related to Scholarly and Creative Activity

There can be a wide variety of ways that this category may be satisfied. The list below is meant to be illustrative and is neither ordered nor exhaustive.

Publication in refereed journals;

Publication of a peer-reviewed book; chapter in a peer-reviewed book;

Clear efforts to involve, and successful involvement of students in ongoing research;

Co-author of publications and presentations with students;

Applications for external funds to support ongoing scholarly and creative work;

Awards of peer-reviewed applications for external funding;

Research instructionally related to the disciplines, the category of research specifically authorized for the CSU by California's Master Plan for Higher Education;

Applied research or professional activity to address problems of importance to the disciplines and society;

Awards of peer-reviewed internal grants;

Editorial/reviewer assignments with recognized professional publications calling for professional expertise;

Membership on selection and review panels for grants, fellowships, awards, conference presentations, and other efforts calling for professional expertise;

Scholarly presentations at professional meetings and conferences.

Curricula and instructional technology developed for uses outside of a candidate's own personal teaching.

d. Evaluation For Scholarly and Creative Activities

The quality of faculty performance and the continuing productivity of the faculty member are the most important elements to consider, and are the primary criteria. The candidate bears the primary responsibility for explaining the significance of activities in this category, and reviewers will examine all materials submitted by the candidate.

3. Professional Service

Professional Service necessarily includes a clear determination of its relationship to the candidate's academic expertise.

a. Essential Criteria For Professional Service

Faculty are expected to participate actively in faculty governance. Examples that may satisfy essential criteria for professional service are given in the College RTP document.

b. Enhancing Criteria For Professional Service

Examples of some completed products/activities that may satisfy enhancing criteria in this category are also given in the College document.

c. Examples of Products/Activities Related to Professional Service

Authorship of documents, reports and other material pertinent to the Department, the College, and/or the University;
Sponsoring student groups;
Actively participating in educational equity programs;
Service to professional organizations;
Profession-related activities at local, state, national, and international levels through such discipline-oriented activities as committees, workshops, speeches, media interviews;
Consultancies to schools, local governments and community service organizations;

d. Evaluation For Professional Service

The emphases in the evaluation of professional service shall be on: (1) the quality and significance of the activity, as measured by the degree to which the activity contributes to the missions of the University, the College and the Department; and (2) the extent and level of the candidate's involvement.