The University of Arizona
Instructions and Approval Sheet
Proposal for New Academic Organizational Unit

Directions:

1. Provide information in the form requested. Respond to each item individually.

2. Obtain signatures of the proposed unit administrator (Hixon) and unit supervisor (Tolbert).

3. Forward the original and one copy to the supervising office (VPR) and retain a copy.

4. The supervisor (Tolbert) should forward the original to Curriculum and Registration Office, Academic Programs, Attention: Sandra Beeler, CCIT 337, and retain a copy for files. Signatures of cooperating deans (Ruiz, Joiner, Sevigny) may be required.

Description of the proposed organization unit change: New Center

Title: National Center for Science and Medicine in the Performing Arts

Unit Administrator: Thomas J. Hixon, Professor of Speech, Language, and Hearing Sciences,

Signature ____________________________ Date 10-02-06

Approvals

Unit Supervisor: Leslie P. Tolbert, Vice President for Research

Signature ____________________________ Date 12/2/06

Cooperating Deans:

Joaquin Ruiz, Dean of the College of Science

Signature ____________________________ Date 10/2/06

Keith A. Joiner, Dean of the College of Medicine

Signature ____________________________ Date 10/2/06

Maurice J. Sevigny, Dean of the College of Fine Arts

Signature ____________________________ Date 10/2/06
Proposal for a New Academic Organizational Unit at the University of Arizona

National Center for Science and Medicine in the Performing Arts

Prepared by Thomas J. Hixon, Ph.D.
Professor of Speech, Language, and Hearing Sciences

I: Description of the Proposed Organizational Unit Change

A. Not applicable

B. Formation of a new unit

II: Purpose and Activities of the Unit

A. The National Center for Science and Medicine in the Performing Arts will be a new unit designed across the Colleges of Science, Medicine, and Fine Arts. The unit will also have major interactions with faculty and students in the Colleges of Education, Engineering, Humanities, Nursing, Public Health, and Social and Behavioral Sciences. This will be a unique unit and will focus international attention on the campus. The University of Arizona will be the first university to create a unit concerned with both the scientific understanding and healthcare of performing artists. The nature of the unit is multidisciplinary and will draw upon a campuswide group of faculty and students. The proposed unit fits within the mission and scope statement adopted by the Arizona Board of Regents for the University of Arizona. It fosters multidisciplinary collaboration, brings the best of research to interface with undergraduate and graduate educational programs, provides outreach to the citizens of the state and nation, and provides unique clinical services in support of performing artists from the campus and elsewhere within the state, region, and nation.

B. The goals and objectives of the unit pertain to the performing arts in voice, music, and dance. The central concerns are the following: (a) to conduct fundamental research on the mechanisms of artistic performance, including aspects related to neural, muscular, structural, acoustical, sensory, and cognitive levels of control; (b) to develop databases on the nature of optimal performance; (c) to develop algorithms for predicting performance skill potential in aspiring performers; (d) to develop protocols to accelerate performance skill acquisition and achieve earlier performance skill mastery; (e) to develop protocols to increase the effectiveness, efficiency, economy, versatility, endurance, and comfort of performance; (f) to develop protocols for enhancing and prolonging performance careers; (g) to provide self-help information for performing artists; (h) to enhance and expand the contributions of the performing arts to medicine and healing; (i) to provide research training to faculty, students, and postdoctoral visitors; (j) to develop programs of continuing education for performers and instructors; (k) to disseminate information to the public concerning the importance of healthcare issues in performing artists; (l) to establish injury and disease prevention protocols to reduce the likelihood of interruption to performance careers; (m) to establish prototype multidisciplinary
clinical facilities designed for the evaluation and treatment of injury and disease in performing artists; (o) to establish, in conjunction with local destination resorts, "performance spas," where performing artists can come for evaluation and educational programs designed to enhance their skills and prevent abuse or misuse of their performance apparatus; (o) to develop curricular models and protocols for instruction in the prevention of injury and disease in performing artists, as have recently become required by national accrediting agencies; and (o) to establish a cadre of faculty with special qualifications to serve as expert consultants and expert witnesses in forensic matters having to do with performing artists.

C. The activities, projects, and programs that will be conducted by the new unit follow the goals and objectives stated above. The nature of the Center is complex and involves a wide array of disciplines, even within the performing arts themselves. The plan is to develop international strengths across the board in all components of the Center—voice, music, and dance. Different patterns of relative strength currently exist within and across these components and in each of their participations in multidisciplinary venues. The Center is proposed to come on line with full efforts in all three components. It is recognized, however, that there will be different starting points for the goals and objectives stated above because some activities are well developed, some are only partially developed, and some are not yet developing within and across the components.

The voice component of the Center will be concerned with actors, singers, and other heavy voice users. This component is currently well developed in many regards. This is, in part, because of the rich experimental and clinical history of this component within the Department of Speech, Language, and Hearing Sciences. Faculty, students, laboratories, and clinical facilities are outstanding in normal and abnormal voice production (in fact, world renowned). As well, historical ties exist with theatre arts (voice) and music (vocal pedagogy and vocal performance) faculty and students. Some of the goals and objectives stated above have been implemented through activities of the Institute for Neurorgenic Communication Disorders. Several models for continuing education (distance learning) and information dissemination (including bilingual materials) are already in place, following a 10-year history of testing and successful use. Also, several research grants are currently in place that have applicability to the voice enterprise of the proposed Center and which, upon renewal, may add foci that will encompass the Center’s research initiatives. Faculty who will initially be involved in the voice component come from the following units: Biomedical Engineering, Cognitive Science, Motor Control, Music (voice), Neurorgenic Communication Disorders, Neurology, Neuroscience, Physiology, Psychology, Speech, Language, and Hearing Sciences, and Theatre Arts (voice). All that is needed to make the voice component of the Center fully functional is the addition of an otolaryngologist to the Department of Surgery.

The music component of the Center will be concerned with performing artists who play woodwind, brass, keyboard, string, and percussion instruments. This component remains to develop strong multidisciplinary research ties across science and medicine, but contains some of the most highly touted performance groups in the nation. Prime examples are the performance group in harp and the performance group in jazz ensemble. Many of the faculty members who will be working in the voice component of the new Center have interests and skills in the analysis of music performance. For example, a recent study of the biomechanics of bassoon playing was completed in laboratories within the Department of Speech, Language, and Hearing.
Sciences. As well, computer modeling of tube acoustics is ongoing in the same laboratories under the direction of a physicist/speech scientist. There are also other faculty with experimental and performance interests distributed throughout the university. These include faculty in Applied Mathematics, Biomedical Engineering, Cognitive Science, Mechanical Engineering, Motor Control, Music (instrumental), Neurology, Neuroscience, Optical Sciences, Physics, Physiology, and Psychology. Physical medicine, performance psychology, and physical therapy will play important roles in this component of the Center. Individuals with credentials in these three disciplines will be recruited for participation from the local community in Tucson.

The dance component of the Center will be concerned with performing artists engaged in all types of dance. Dance at the University of Arizona is internationally recognized for its excellence. As with the music component, the dance component remains to develop strong multidisciplinary research efforts across science and medicine. Injuries are common in dance and strong clinical ties are of great importance to performing artists for prevention and treatment. In some regards, dance is the most challenging area for scientific study. Large physical facilities, multidimensional movement transduction systems, and sophisticated motor control paradigms are required. Faculty members with interest in the dance component are located throughout the University. These include faculty in Applied Mathematics, Biomedical Engineering, Cancer Biology, Cognitive Science, Dance, Gerontology, Mechanical Engineering, Motor Control, Neurology, Neuroscience, Physical Medicine, Physics, Physiology, and Psychology.

The proposed new Center holds great promise to provide systematic scientific and medical study of performing artists and the special problems they face in their crafts. By creating a formal framework such as the proposed National Center for Science and Medicine in the Performing Arts, a unique opportunity will be presented to focus on and solve many career issues confronting this especially talented group of individuals in society. At the same time, the University of Arizona can serve as a land grant institution in a way that no other research university has embraced. The unique feature of a Center devoted to these concerns should attract premier talents from all over the world. As well, the University of Arizona should become internationally recognized as the place to go to understand performance problems and to learn what to do about them. One aspiration for the Center is to gain the reputation of being a sort of “Mayo Clinic” for performing artists. A Center of the type proposed will offer an exceptional mechanism for recruiting top students and faculty. Also, it will offer an exceptional continuing education mechanism for faculty already at the University.

Although this proposal does not provide for an academic organizational unit that can grant degrees, the curricular implications for various units on the campus are significant. A new multidisciplinary colloquium series will be developed that focuses on science and medicine in the performing arts. It is anticipated that new courses will be developed across existing units. Undoubtedly, specialty certificates will be supported where disciplines will obtain education in other disciplines. For example, graduate students in speech, language, and hearing sciences will have an opportunity to apply their clinical skills to the problems faced by performing artists in voice and music. For another example, graduate students in vocal pedagogy will gain new knowledge of the research methods that can be applied to understand and enhance their crafts. And, for a final example, medical personnel, such as otolaryngologists, will have an opportunity.
to function in an academic environment where they can gain specialty education and develop a unique niche offering to the public is in their clinical practices.

There are also implications for affording educational opportunities to students on other campuses of the Arizona State University System and for providing research opportunities for faculty and students throughout the System. A model for such collaboration exists in the Arizona Statewide Training Program in Movement Neuroscience, a collaborative consortium of 33 faculty members from a variety of disciplines across the University of Arizona, Arizona State University, Northern Arizona University, and the Barrow Neurological Institute. The potential for such collaboration is palpable given the recent positioning of a University of Arizona College of Medicine site in Phoenix.

There is reason to believe that a world class graduate interdisciplinary minor could be developed around the core educational offerings that will evolve from the proposed new Center. Such a minor would be unique on the educational landscape and would place the University of Arizona at the forefront in this domain. Finally, there is potential to have a significant curricular impact on universities and colleges nationally. That is, the new Center holds promise to establish new curricular models and protocols in response to the national accrediting initiative calling for instruction in the prevention of injury and disease in the training of performing artists. It is probable that the development of training modules in this area could be a new revenue source.

D. Not applicable
E. Not applicable

III: Resources
A. Faculty and Staff
1. Administration

Thomas Hixon, Ph.D., Professor                 Director (50%)
Kenneth Ryan, M.D., Professor                 Associate Director (15%)

2. Faculty*

Marsha Bagwell, M.F.A., Associate Professor
Julie Barkmeier-Kraemer, Ph.D., Associate Professor
Kate Bunton, Ph.D., Assistant Research Scientist
James Clouser, M.F.A., Associate Professor
Barbara Cone-Wesson, Ph.D., Associate Professor
Kristin Dauphinias, Ph.D., Assistant Professor
Pamela DeFeo, D.M.A., Professor
Anthony DeFeo, Ph.D., Clinical Director
Amy Ernst, M.F.A., Associate Professor
Charles Falco, Ph.D., Professor
Paula Fan, Ph.D., Regents Professor
Becky Farley, Ph.D., Research Assistant Professor
Cynthia Fox, Ph.D., Research Lecturer
Andrew Fuglevand, Ph.D., Associate Professor
Theodore Glatke, Ph.D., Professor
Jory Hancock, M.S., Professor
John Hildebrand, Ph.D., Regents Professor
Thomas Hixon, Ph.D., Professor
Jeannette Holt, Ph.D., Professor
Gail Kosland, Ph.D., Lecturer
Robert Lansing, Ph.D., Professor
Jungmee Lee, Ph.D., Assistant Professor
Richard Levine, Ph.D., Professor
Andrew Lotto, Ph.D., Assistant Professor
Melissa Lowe, Professional, Professor
Brian Luce, D.M.A., Assistant Professor
Peter McAllister, Ph.D., Professor
Carrol McLaughlin, Ph.D., Professor
Thomas Peterson, Ph.D., Professor
Gwen Powell, M.A., Professor
Richard Powell, Ph.D., Regents Professor
Monse Ralstin, M.F.A., Associate Professor of Practice
Lucinda Rankin, Ph.D., Lecturer
Brad Story, Ph.D., Assistant Professor
Charles Roe, M.M., Professor
Kenneth Ryan, M.D., Professor
Alexander Teitler, M.A., Adjunct Assistant Professor
Kelland Thomas, M.M., Coordinator
Leslie Tolbert, Ph.D., Regents Professor
Albert Tucci, M.F.A., Professor
Sam Watson, Artist in Residence, Assistant Professor
Dianne Winslow, M.F.A., Professor

* Faculty positions within the Center will be in the research scientist series of appointments. Assistant Professors will be Assistant Research Scientists, Associate Professors will be Associate Research Scientists, and Professors will be Research Scientists. The level of involvement will depend on projects underway. It is anticipated that a 10% effort might be devoted per annum on average, however, certain projects may require larger efforts and individuals would negotiate those circumstances with the supervisors to whom they report.

3. **Support Staff**

To Be Named

Administrative Associate (100%)
4. Graduate Assistants

To Be Named (3)  Research Assistant (50%)

5. New Faculty and Staff

To Be Named  Otolaryngologist (30%)

B. Facilities and Equipment

1. No new physical facilities will be required to make the Center functional. Space within the Institute for Neurogenic Communication Disorders (a unit of the College of Science) can be allocated to enable an immediate physical presence for administration, staff, graduate research assistants, and any other faculty and staff personnel. This space is located in the same building as the Department of Speech, Language, and Hearing Sciences, where many key laboratories are located for studies that will be involved in the voice and music components of the Center. Private funding will be sought to do minimal remodeling of this space to improve the efficiency of its use, although such remodeling is viewed as an upgrade and not a contingency for successful start up of the new Center.

2. Not applicable

C. Library Resources, Materials, and Supplies

1. Not applicable

2. Not applicable

D. Other Information

1. As mentioned above, one of the goals and objectives of the Center is to establish new curricular models and protocols for instruction in injury and disease prevention. This is an exceedingly timely and important pursuit because national accrediting agencies in the fine arts have recently called for such instruction to become a routine offering in all educational programs. Thus, this is an imperative for the College of Fine Arts and must be done whether or not the proposed Center exists. To take the national lead in doing this, rather than just reacting to the new requirements, would reflect extremely well on the College of Fine Arts and the University of Arizona and focus national attention on all of our performing arts programs of study. The new accrediting requirement presents an exceptional and timely opportunity for the proposed Center to take a national leadership role at its inception.

2. Some readers of this document will not be aware of the history of the author of this proposal and the proposed Director of the Center (as well as the proposed Associate Director). This information seems important to making a judgment about the potential success of this endeavor.
The proposed Director of the Center, Thomas J. Hixon, Professor of Speech, Language, and Hearing Sciences at the University of Arizona, has been a faculty member on the campus for 30 years. He has served as a Department Head, an Institute Director, Director of Graduate Interdisciplinary Programs, Dean of the Graduate College, Associate Vice President for Research, and is a founding co-author of the University's initiatives in Biomedical Engineering, Cognitive Science, Neuroscience, and Motor Control. He conceptualized, developed, and fully funded, for a 10-year period, through the National Institutes of Health, the National Center for Neurogenic Communication Disorders at the University, the premier unit of its kind in the world. He also Directed the Arizona Statewide Training Program in Movement Neuroscience. Hixon was recently identified as being above the 95th percentile in the receipt of funding from the National Institutes of Health over the past 25 years. Much of his lifetime work has been devoted to understanding movement disorders resulting from brain and spinal cord dysfunction. The initiative represented by the proposed new Center represents the other end of the continuum, working with individuals who have exquisite motor skills, an interest he has pursued in his own work on classical (Shakespearean) actors and classical (opera) singers, and for which he enjoys an international reputation.

The potential success of a new National Center for Science and Medicine in the Performing Arts will hinge to a great degree on the skill and commitment of the person designated to direct such an endeavor. Hixon's track record with multidisciplinary endeavors on the campus is outstanding and there is a high probability that he will be able to forge the proposed new Center into an international powerhouse and to fund it through a variety of grant mechanisms and philanthropy. The Center being proposed here is a no risk, low cost, high benefit endeavor that has unique formative features.

Hixon and the proposed Associate Director of the Center, Kenneth J. Ryan (former acting Dean of the College of Medicine), were both scientists who have shared and discussed over many years their long interests in voice and music in general and classical singing (opera) in particular, Hixon from the biomechanical perspective and Ryan from the artistic perspective. Both have a great appreciation for the performing arts and are themselves musicians. The combined experiences of Hixon and Ryan in the performing arts and in administrative positions at the University of Arizona seem to be a strong positive in embarking on an endeavor such as the proposed Center.

E. Financing

1. The University's plan for providing adequate funding for the Center is multifaceted. The Office of the Senior Vice President for Academic Affairs and Provost will provide funding for the Director of the Center. The Office of the Dean of the College of Medicine will provide funding for the Associate Director of the Center. The Office of the Vice President for Research, Graduate Studies, and Economic Development will provide funding for the Administrative Associate and for an Operations Budget. The Office of the Dean of the Graduate College will provide funding for the three Graduate Assistants. Offices of the Deans of Science, Medicine, and Fine Arts will provide support, in the form of appropriate periodic release time, to faculty participants involved in special projects. Otherwise, faculty participants will function as participants routinely do in various committees associated with Graduate Interdisciplinary
Programs. That is, they will work in the Center in the spirit of collegiality, the interest of science, and accruing the benefits of multidisciplinary associations and projects for themselves and their students. The faculty of the University is rich in such tradition from its experience in a wide array of Graduate Interdisciplinary Programs. The Office of the Dean of Fine Arts will provide support for a monthly Colloquium on Science and Medicine in the Performing Arts and for initiatives related to the development of prototype accreditation models on the prevention of injury and disease in performing artists. A fractional faculty line (at 30% effort) and will be supported through reallocation as determined to be appropriate by the Dean of the College of Medicine subsequent to current efforts to recruit a new Head of the Department of Surgery. Finally, a request is being made to the Office of the President asking that he request of the University of Arizona Foundation that the Center be made a multidisciplinary fund raising priority. Ideally a patron would be sought to support or endow the Center and a naming opportunity would be made available for significant benefaction.

2. Potential sources for external funding of the Center include the National Institutes of Health, National Science Foundation, National Endowment for the Arts, and patrons of voice, music, and dance.

3. New appropriations of state funds are not requested. Rather, existing appropriations will be reallocated following the principles outlined in the discussion above.

4. See New Organizational Unit Budget Projections Sheet below.

5. The estimated external funds that may be obtained by the Center during it first three years of operation are $100,000, $500,000, and $750,000, respectively.

IV. Other Information

A. Sunset review of the Center would be accomplished in accordance with ABOR Policy 2-301.G, as required, the review date being contingent on the start up date.

B. See Section III. D. 2. for other information that may be useful in evaluating the proposal.