TECHNOLOGY, ARTS AND MEDIA (TAM)
CERTIFICATE PROPOSAL

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ABSTRACT

A new age of networked information and communication is bringing together three elements -- the content of business, media, entertainment, education and other industries; design and artistic perspectives; and multimedia technology -- as never before.

Many areas of our workforce and our lives will combine these three elements: technology, arts and media (TAM). Preparing students for these new needs and opportunities requires a multidisciplinary approach that can potentially involve every school and college in the university. The TAM certificate program embraces this new multidisciplinary paradigm through a curriculum that includes multidisciplinary, multimedia projects, as well as courses that impart technological skills, foundational knowledge, and a critical perspective on the role of technology in society. It consists of six courses: an introductory multidisciplinary survey course on the Future of Technology, Arts and Media; an introductory projects course; three core courses drawn from new and existing courses in the areas of History and Social Implications, Theories and Foundations, and Invention and Practice; and a second, capstone multidisciplinary projects course. The certificate will be available to any undergraduate student at CU Boulder.

STATEMENT OF PURPOSE OF THE CERTIFICATE PROGRAM

We are in the midst of an information systems and communication revolution. New multimedia technologies and networked communications have swiftly created a demand for citizens who understand the multidisciplinary nature of today's businesses and society. This new working and living environment challenges universities to provide multidimensional preparation for the future.

The Technology, Arts and Media (TAM) Certificate program, which is open to students from every school and department at CU-Boulder, will teach students from a broad range of disciplines how to use each others' tools and speak each others' languages in the contexts of technology, media and the arts. The certificate also will provide a flexible structure for students to question and analyze the convergence of technology, arts, and media across disciplines. It will expose students to new worlds of knowledge, introducing them to the possibilities which disciplines other than their own can offer them. The certificate will encourage humanities students to explore the potential of new information technologies and artistic design to revolutionize their fields of study. TAM will allow the design student to explore how such subjects as narrativity, cognitive sciences,

communicative theory or computer programming might reshape his/her area of expertise. For the science or engineering student, the TAM certificate will provide the opportunity to mix technical knowledge with creative perspectives from the arts and humanities.

The TAM certificate will encourage all students to discover new technological possibilities as well as artistic and informational media and to appreciate the social and historical implications of those media. Through its projects courses it will emphasize multidisciplinary collaboration, communication and teamwork. The combined effect will be to enable students to develop the practical and critical thinking skills required for effective participation in the digital world and in a variety of new career paths.

TAM MISSION STATEMENT AND CONGRUENCE WITH CAMPUS MISSION

The mission of the Technology, Arts and Media Certificate program is to provide students with the insights and abilities required to become leaders in a society shaped by the convergence of information technologies, the media and the arts. The certificate program will prepare students from all sectors of the CU-Boulder campus to succeed in the information age; it also will stimulate multidisciplinary collaboration within the entire campus community. While the certificate purposes primarily to teach its students how to learn in and adapt to a rapidly-changing world, it also will help prepare students for careers in numerous industries, such as media, publishing, entertainment, multimedia design, electronic commerce, and advertising. The goals of the certificate program are:

- To create opportunities for the university to explore and make optimal use of the relatively recent convergence of information technology, media and the arts.
- To generate in its students a passion for creativity, discovery and innovation by encouraging them to explore fields traditionally viewed as foreign to their own.
- To foster in its students the acquisition and application of critical-thinking abilities about information technologies, media and the arts.
- To provide students with the practical skills they will need to be leaders in the digital age.
- To cultivate self-aware citizens who will ensure that the development and application of technology in arts and media is responsive to human needs and values.

The Technology, Arts and Media Certificate program is an initiative of the Alliance for Technology, Learning and Society (ATLAS). ATLAS is a prime example of CU's Total Learning Environment initiative, which seeks to:

- Support innovations in learning and creative scholarship
- Be more responsive to students and other constituents
- Use technology to improve learning, teaching, and research
- Enhance the university's infrastructure

ATLAS is a campus-wide initiative aimed at developing and sustaining excellence in the integration and understanding of information and communication technology in teaching, curriculum, research and outreach. Its principal aspects include:

- Innovative uses of technology in education and assessment of their effectiveness
- New curriculum and research that combines technology, arts and media
- Research that assesses the societal impacts of technology
- Outreach to the K-12 system regarding the uses of technology in delivery and content of instruction
- Provision of an excellent technological infrastructure for all students and faculty

DESCRIPTION OF THE PROPOSED CURRICULUM

The certificate program comprises 6 courses, offered for a total of 18 credits.

1. An introductory "Future of Technology, Arts and Media" course which offers to entry-level students an overview of the breadth and range of information technology, arts, and media-related fields open to them. This course outlines the various skills that certificate students will want to acquire during their tenure at CU Boulder. Students meet and exchange ideas with CU faculty from a broad range of disciplines, and with outside guests from both local and national industry, government and arts institutions. By the end of the course, students will have acquired some basic technical skills, such as E-mailing, web-browsing and basic web page creation; they will be aware of the rapid expansion of new technology, arts and media fields open to them and of the skills necessary for success in each field; and they will have begun to think critically about the implications and impacts of new information technologies, media and artistic forms. This course requires no prior technical knowledge.

2/3. Two "projects" courses, one introductory and one capstone course, in which students from a variety of backgrounds and disciplines engage in applied multimedia projects. The courses encourage collaboration, invention and problem-solving through the application by students of specific technical, artistic and analytical skills developed during the course of the semester. Students will produce several multimedia works, both as individuals and in interdisciplinary groups, and will demonstrate a critical appreciation of the social, communicative and technical implications of these products. By the end of the capstone course, students will have portfolios which demonstrate their development and potential as well as their own written analyses of their work during the certificate program. Additionally, the capstone projects course will involve some degree of production for real-world clients, largely outside of the university. During the next year TAM will increase the number of projects courses from one each semester to between two and three per semester.

4,5,6. From a list of courses offered campus-wide, students will take three "core courses", one in each of the following categories: (1) The History and Social Implications of Technology, Arts and Media (2) Theories and Foundations of Technology, Arts and Media (3) Invention and Practice in Technology, Arts and Media. Students may not take more than one core course within a single academic department. The purpose of the core is to provide students with a broad perspective on technology, arts and media; to encourage students to take courses in a variety of disciplines and to experience the environments and problem-solving techniques in other fields of specialization; and to learn to apply new skills to their own academic endeavors.

History and Social Implications:

Courses in this area will provide students with the historical context and assessment methods necessary for critical thinking about evolving relationships between technology, arts, and media. They will introduce students to the history and social implications of one or more forms of media and information technologies. Media are defined broadly here to include literature, print and electronic journalism, radio, television, Internet, film, painting, dance, and computer-imaging. Courses in this area focus on the history, forms, systems, applications, and effects of human communication. Students will learn to evaluate the impacts of developing and/or established media and information technologies upon society. This category includes such diverse courses as: Critical Thinking about Art and Society, Societal Implications of New Media, Writing on Real and Virtual Society, Women and/in Technology, and Technology and History of German Film.

Theories and Foundations:

Courses in this area expose students to some of the theoretical approaches to technology, media, and the arts employed by different disciplines. They emphasize the teaching of foundational (inter-)disciplinary concepts to stimulate critical thinking about symbolic form and content. Courses can range from those treating theories of vision and sound to literary and sociological or anthropological models for understanding media and the world around us. Theories and Foundations Courses also emphasize the process by which theoretical knowledge is developed within a given discipline. This category includes such diverse courses as: Color Theory, Science Images and the Internet, Human Communication Theory, Cognitive Theory, Theories of Narrative, and Philosophy and Sciences.

Invention and Practice:

Courses in this area will provide students with the opportunity to gain and exercise specific (inter-)disciplinary skills related to technology, media and the arts. These courses may offer either small-group or independent learning situations. Courses will emphasize three components: 1) a ***CREATIVE*** component allowing students to experiment, design, and/or make things; 2) a ***TECHNICAL*** component requiring students to master one or more concrete skills needed to complete the creative act; and 3) an ***EVALUATIVE*** component in which students' work is assessed for creativity and effectiveness. These courses differ from the Certificate's projects courses in that students will be encouraged to work independently and to focus on acquiring specific skills which reflect and develop their own personal interests. Examples of such skills include musical composition, web authoring, architectural modeling, choreography, Java programming, digital recording, digital imaging, and computer animation. This category includes courses like: Introduction to Music Technology, Designing the Information Society, Digital Filmmaking, Electronic Journalism, Teaching Foreign Languages with Technology, and Form Z and Narratives of Space.

DESCRIPTION OF PROGRAM ADMINISTRATION

In its pilot phase, The Technology, Arts and Media (TAM) Certificate program will be administered by the Alliance for Technology, Learning and Society, in the Office of the Associate Vice Chancellor for Academic and Campus Technology. After 1-2 years, administration of the program and associated resources will likely move to a school or college at CU-Boulder.

RESOURCE IMPLICATIONS

Resources required for the Certificate Program include:

Program Development

- Course-buyout or support for the regular or adjunct faculty who will teach the initial pilot offering of the new TAM courses, or for departments that will offer additional sections of existing courses for the TAM certificate
- Support for the development of a small number of new courses
- Limited support for hardware and software needs of TAM courses
- Support for one or two *multimedia instructional associates* who will team teach projects courses with faculty, allowing the faculty to concentrate on course content and providing technical assistance and expertise to faculty

These costs will be provided by ATLAS, both through its core budget and through fundraising.

Ongoing Operation

- Advising support for the certificate – the size of this need will depend on the demand for the program. Initially advising will be provided by ATLAS staff, after the pilot phase it tentatively will be provided by the College or School in which the program resides.
- Possibly, funding for the delivery of a few courses per year, if the program is judged to increase the course offerings of the campus in the steady state.
- Ongoing software and hardware support, to the extent that this exceeds the support provided by the standard campus computing laboratories.
- Possibly, ongoing support for one or two multimedia technological associates if they are deemed useful on an ongoing basis.

Endowment or ongoing operational funding for these costs is a goal of ATLAS fundraising.

Space

- New or existing multimedia instructional facilities that can support the project courses of the certificate. The joint ATLAS/Fine Arts laboratory in Sibell Wolle N275 and in the Anderson Language and Technology Center currently support the needs of several Technology, Arts and Media Certificate classes.

The planned ATLAS Center would provide some, or possibly all, of these facilities.