NEH Application Cover Sheet
Digital Humanities Start-up Grants

PROJECT DIRECTOR

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Field of Expertise: Social Science: Cultural Anthropology

INSTITUTION

New Mexico Institute of Mining & Technology
Socorro , NM UNITED STATES

APPLICATION INFORMATION

Title: *Humanizing Tech/nology*

Grant Period: From 5/2014 to 11/2015
Field of Project: Interdisciplinary: Interdisciplinary Studies, General

Description of Project: We propose a unique inter-disciplinary research and teaching space
intersecting the Humanities and STEM disciplines at NMT. The Humanities are perfectly situated to collaborate with
STEM disciplines to humanize technology and to provide a human element to STEM products and dissemination, while
the STEM disciplines bring an understanding of the natural world and technology. Through this cooperation, the
Humanities provide an understanding of human need that can inform and enhance technology.

Specifically, we plan collaborative clusters of Humanities, CS&E, Biology, and Chemistry for research and teaching
opportunities, plus teaching components to provide Humanities??? input in courses and public information materials.
Both will produce a unique integration of the Humanities fields with other disciplines on campus, benefitting the

BUDGET

Outright Request	$30,000.00	**Cost Sharing**	$0.00
Matching Request	$0.00	**Total Budget**	$30,000.00
Total NEH	$30,000.00		

GRANT ADMINISTRATOR

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"Humanizing Tech/nology:
A Proposal to Integrate Humanities on a STEM-Campus and Beyond"

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2. LIST OF PARTICIPANTS

Barrientos, Paul, New Mexico, Music Performance

Beinhoff, Lisa, New Mexico Tech, Director Skeen Library

Bonnekessen, Barbara, New Mexico Tech, Cultural Anthropology

Davidson, Iver, New Mexico Tech, Director Distance Education

Durão, Rosário, New Mexico Tech, Technical Communication

Kmiec, Dave, New Jersey Institute of Technology

Kostelnick, Charles, Iowa State University, English

Kramer-Simpson, Elisabeth, New Mexico Tech, Technical Communication

Lima, Manuel, Parson School for Design

Longo, Bernadette, New Jersey Institute of Technology

Mazumdar, Subhasish, New Mexico Tech, Computer Science & Engineering

Newmark, Julianne, New Mexico Tech, English

Pias, Sally, New Mexico Tech, Chemistry

Rogelj, Snezna, New Mexico Tech, Biology

Samuels, Mark, New Mexico Tech, Psychology & Education (MST)

Simpson, Steve, New Mexico Tech, Technical Communication

Tartis, Michaelann, New Mexico Tech, Chemical Engineering

3. ABSTRACT AND STATEMENTS OF INNOVATION AND HUMANITIES SIGNIFICANCE

- Abstract

We propose a unique inter-disciplinary research and teaching space intersecting the Humanities and STEM disciplines at NMT. The Humanities are perfectly situated to collaborate with STEM disciplines to humanize technology and to provide a human element to STEM products and dissemination, while the STEM disciplines bring an understanding of the natural world and technology. Through this cooperation, the Humanities provide an understanding of human need that can inform and enhance technology.

Specifically, we plan collaborative clusters of Humanities, CS&E, Biology, and Chemistry for research and teaching opportunities, plus teaching components to provide Humanities' input in courses and public information materials. Both will produce a unique integration of the Humanities fields with other disciplines on campus, benefitting the Humanities through both higher visibility and technical applications, and the STEM fields through a "humanizing" process for researchers and learners.

- Statement of Innovation

This unique symbiosis integrates Humanities and STEM fields in collaborative research and teaching, using digital technology and creating joint materials (for research and teaching) through multi-disciplinary clusters and online public information) that use the human perspective in the development and use of technology. This creates a better research and teaching environment, allowing Humanities to research STEM modes of communication and to facilitate new avenues of research and practice.

- Statement of Humanities Significance

By collaborating with selected STEM researchers, we integrate a Humanities-based approach in their work, and study those disciplines through the lens of Humanities. Such joint projects enrich the STEM fields and promote an understanding of the Humanities as a foundation to engage in science and engineering, and to develop human-centered teaching materials and public information. Conversely, such collaboration enhances the technical capabilities of the Humanities.

4. NARRATIVE
Enhancing the Humanities through Innovation

Our proposal is unique in that it will integrate the strengths of the Humanities with STEM fields, namely in our intent to explore novel forms of data, textual analysis, and visualization across disciplines. By processing and presenting data and texts in novel ways, we can learn more from a research point of view. This learning will enhance the Humanities as it allows researchers from the Humanities and the STEM fields to build on human interaction with technology in a manner that improves human-centered technology development and use. Conversely, the Humanities are empowered to incorporate digital technology on their own terms.

NMT focuses on the STEM disciplines (science, technology, engineering, and mathematics). The Department of Communication, Liberal Arts, and Social Sciences stands out as one of the largest and most multi-disciplinary departments on campus, with faculty in English, History, Hispanic Studies, Technical Communication, Music, and Philosophy. Consequently, we collaborate extensively with the STEM departments, especially in Technical Communication, English, and Philosophy. This proposal describes an effort to take advantage of our position within the university. First, we will develop digital technologies to disseminate Humanities content to on-campus and distance students and public audiences. Second, we will include faculty from non-STEM focused schools to strengthen the Humanities-perspective while also bringing our STEM-collaboration to their campuses. Third, we will develop digital collaborations between the Humanities and STEM fields on campus (initially Computer Science and Engineering (CS&E), Biology, and Chemistry) to humanize the presentation and dissemination of their research and publications, to assist them in developing cutting-edge visualizations of teaching and research content, and to better understand the processes and practices of scientists and engineers. The three partner departments are perfectly suited for this initial development because of CS&E's technology and search for practical applications for coding and the use of challenging visual materials and research projects in Biology and Chemistry.

Our final goal is to create an inter-disciplinary teaching and research space at the intersection of Humanities and STEM to inform content teaching at all academic levels, provide collaborative research opportunities, and create an open-access space for public education. This will result in an example of the versatility of the Humanities, their applicability to STEM fields, and the added worth of placing the Humanities at the center of a university education and public outreach. We are applying here for a Level I grant to begin setting up a cross-campus structure of joint teaching and research interests, identify possible, yet unrealized collaborations between faculty members, and set up an online portal illustrating and celebrating the bridge between Humanities and STEM, holding tools for showcasing works, sparking experimentation, and reviving collaboration. The site would have separate levels and options for classes and the public.

Environmental Scan

The Digital Humanities is a growing field, both in the US and in the world. Staying true to our purpose, we are searching for models that tie in the Humanities with STEM fields, but we are also identifying suitable Humanities-focused models, such as HASTAC's global community, MIT's Picturing to Learn and Image project and Meaning project, and Harvard University's BioVisions project. We expect to connect to these efforts through our clusters and contribute. Our clusters are, in turn, modeled after Purdue University's Digital Humanities Research

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Synergy Cluster, bringing together faculty members from throughout the university to collaborate on digital projects (initial clusters are described in the Work Plan section). The National Science Foundation (NSF) and the journal *Science* offer the International Science & Engineering Visualization Challenge; several of our Technical Communication courses offer similar learning goals, illustrating of the power of adding Humanities skills to natural sciences and engineering and which we could enhance and broaden with this grant. Our web portal will be modeled on the portal of the Göttingen Centre for Digital Humanities (GCDH at http://www.gcdh.de/en/); the international user-friendliness of this particular model well suits our faculty's international focus and interests.

History and Duration of the Project
This unique project stems from two precursors at NMT. First, we have integrated Technical Communication in STEM fields, e.g., we work with Mechanical Engineering students on their Senior Design projects. Second, a meeting about the potential of Digital Humanities with select faculty from the Humanities, Chemistry, Biology, CS&E, the campus library director, and the Director of Distance Education, revealed a strong interest in Humanities-focused collaborations.

We will use the Level I grant to create a formal structure to integrate the Humanities on campus, first with a few other departments. At the end of the funding period, we will apply for a Level II grant to fully test and enhance our project and to include all departments. At the end, we foresee a fully integrated digital learning environment, a digital space for faculty collaborations in research and teaching, and an accessible public portal for community education.

Work Plan
<u>Cluster Development</u> (ongoing): we propose exploratory working groups of faculty from the Humanities, the Natural Sciences, and CS&E to discuss and develop joint research projects. All clusters will meet monthly. (Responsibility of project directors and student assistant)

Cluster Example I: *Visualizing STEM Research Synergy Cluster*
- Initial faculty core: Durão, Kostelnik, Lima, Mazumdar, Pias, Rogelj, Tartis
- The visualizing STEM research synergy cluster addresses the theme of human-centered data visualization of science and technology by addressing the following questions:
  - How do people (scientists, engineers, scholars, students, general population) conceptualize and represent visual knowledge about science and technology digitally and non-digitally?
  - What strategies and tools do/can STEM individuals use to produce data visuals that are accurate, effective, efficient, ethical, intuitive, and aesthetically pleasing?
  - What universal- and culture-based factors influence the visualization of science/technology data about science and technology?
- Expected outcomes:
  - An inter- and cross-disciplinary group of faculty from NMT and participating institutions will work together on different strands of the above questions,
  - The researchers will develop answers and disseminate the results digitally (see Online Content Development below),
  - Addressing the above questions, we will produce models of interest to other institutions, starting with those of our external participants

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Cluster Example II: *Education Cluster*
- Initial faculty core: Samuels, Kramer-Simpson, Rogelj, Simpson, Barrientos, Longo, Kmiec
  - Addresses the specific NMT Education programs by integrating Humanities into STEM teacher training to support Common Core literacy goals
  - How can STEM teachers in secondary schools improve their teaching through data visualization and develop alternative computer-based teaching modules
  - Game development: adaptive behaviors in variety of species to teach evolutionary principles to users ("Game of Life")

As the Clusters develop, the outside participants (Kmiec, Kostelnik, Lima, Longo) will assure the portability of our clusters to other campuses and evaluate progress through alpha-testing.

Online Content Development: we will develop open access online materials to feature research and provide information. Additionally, faculty will provide more online materials to their students. Students in the Master of Science Teaching program will be invited to participate in developing materials for science modules. Longo will be the outside expert and evaluate progress.

Months 1 – 6: identify materials to publish online and develop the portal (responsibility of advisory boards members and Director of Distance Education)
Months 7 – 12: publish materials and collect feedback from users (responsibility of project directors, student assistant, and Director of Distance Education)
Months 13 – 18: fine-tune online materials in response to feedback, add new materials (responsibility of advisory boards members and Director of Distance Education)

White Paper and Level II grant proposal: we will describe and assess our activities and apply for a Level II grant to strengthen the Cluster Developments and Online Content delivery by including more research areas and develop opportunities for undergraduate and graduate students.

Staff
Project Director: Barbara Bonnekessen (manage all grant-related activities; serve as the central manager of all activities; keep all records and assist in dissemination)
Project Co-Director: Rosário Durão (serve as primary focus for digital humanities research and teaching training; campus contact; data visualization expert)
Graduate Student Assistant: TBA (assist project director, arrange meetings and take notes; consolidate all data pertaining to grant and related activities; work on an interdisciplinary thesis or dissertation that uses an integrated Humanities component in a STEM discipline)
Advisory Board: listed in section 6 (implement and evaluate grant activities, assist in identifying and implementing collaborative efforts; assist in dissemination of data and information)

Final Product and Dissemination
We will create several products through this grant:
- Cross-disciplinary research with a strong Humanities focus leading to grant proposals
- On-line portal for visualizations of course content materials (for NMT students) and broad audience interest content (open to the public)
- Conference and journal papers in all participating disciplines
- A White Paper to NEH Office of Digital Humanities
- A Level II grant application

5. PROJECT BUDGET

The full project budget spreadsheet is attached.

Graduate Student Worker: a student assistant is required to assist the PI in grant management.

PI Planning Meeting: as stipulated in the grant guidelines

Consumable supplies: Most of the grant period will be dedicated to planning, brainstorming, and collaborative meetings. We will provide supplies and refreshments to encourage participation.

Website hosting: for the development of the web portal (as specified above under Online Content Development)

Indirect Costs: Sponsored activities on-campus rate 30.5% (Dept. of the Navy); 2 CFR 220; June 29, 2013

	Details	Year 1	Year 2	TOTAL
Salaries & Wages				
Graduate student	20 hrs/week @ $16/hr	10,240	14,080	24,320
	Benefits 2%	205	282	486
Travel				
PI Planning Meeting Washington, DC		1,700		1,700
Supplies & Materials				
Consumable supplies (meeting materials & refreshments)	19 meetings/cluster	722	872	1,594
Service				
Website hosting	$100/month	800	1,100	1,900
Total Direct Costs		13,667	16,334	30,000
Total Indirect Costs	waived			
TOTAL PROJECT COSTS				**30,000**

6. BIOGRAPHIES

Co-PIs:

Bonnekessen, Barbara: associate professor of social sciences and chair of Department of Communication, Liberal Arts, and Social Sciences. BA-equivalent studies in Ancient American Languages and Cultures at the University of Hamburg; MS Sociology & Anthropology Purdue University; PhD Cultural Anthropology University of Kansas. Her work includes analyses of right-wing/fundamentalist women's organizations, and gender in STEM (participation and representation).

Durão, Rosário: assistant professor Technical Communication. BA in Modern Languages and Literatures, Concentration: English and Portuguese Studies, from University of Lisbon (1990); MA Anglo-American Studies, from University of Lisbon (1996); PhD-equivalent Translation Studies, from Open University of Lisbon, Portugal (2008 [2012-US equivalence]). Communication Sciences postdoctoral research fellow from the Portuguese Science and Technology Foundation (October 2008–July 2012). She is the founding editor of *connexions • international professional communication journal*. Her research interests lie in international professional communication, data visualization, science and technology studies, and complexity, particularly the intersection/integration of data visualization and STEM.

Participants:

Barrientos, Paul: Lecturer in Music and Music Performance at NMT. Bachelor of Music from the University of New Mexico. As an Instructor in Music for New Mexico Tech for 11 years he conducted the Concert and Chamber Choruses, and The Tech Chamber Orchestra, taught Voice Classes plus lecture courses in Music and Theater. He also taught Music in the Albuquerque Public School, and Rio Rancho Public School systems. A professional singer he has been a featured artist with such groups as the Boston Symphony Orchestra, the Boston Lyric Opera, Opera Theatre of St. Louis, OperaSouthwest, the New Mexico Symphony Orchestra, and the Santa Fe Symphony.

Beinhoff, Lisa: Director Skeen Library, New Mexico Tech. She holds a Master of Science degree in Library Science from the University of Illinois (Urbana-Champagne) and a PhD in Communications from Syracuse University.

Davidson, Iver: Director of Educational Outreach and Distance Instruction. BA in English and journalism from North Dakota State University; MFA in Fiction Writing from Vermont College; Ph.D. in English from University of Nebraska-Lincoln. His master's thesis was a collection of short stories, <u>Snow Cover</u>, and his Ph.D. dissertation was a novel, <u>Turner House</u>. He has published short stories in a number of journals. He develops educational software and runs his own software firm, Educational Applications. He has worked as a newspaper publisher, editor, and writer.

Kmiec, Dave: lecturer and the technical writing service course coordinator in the Department of Humanities and Social Sciences at New Jersey Institute of Technology. His recent research has focused on the values and identities of engineering as a cultural and political phenomenon before

widespread professionalization. More broadly, he is interested in the values of engineering in an American context and in how the unique American political, economic, and social situation has informed engineers' identities and practices. As a consultant, Dr. Kmiec works for engineering and manufacturing firms such as Vermeer Manufacturing and Sandia National Laboratories, where he trains professional writers and engineers and guides the implementation of modern authoring workflows that improve the quality of and streamline the production of technical documentation.

Kostelnick, Charles: is a professor at Iowa State University, where he served for ten years as chair of the English Department. He has taught technical communication and a graduate and undergraduate course in visual communication in business and technical writing; he has also taught a graduate course and co-taught an undergraduate course in data visualization. He has published several articles and book chapters on visual communication as well as co-authored *Shaping Information: The Rhetoric of Visual Conventions* (Southern Illinois University Press, 2003) and *Designing Visual Language: Strategies for Professional Communicators* (Allyn and Bacon/Pearson, 1998; second edition, 2011). For three years, he served as editor of the *Journal of Business and Technical Communication*, and he currently serves as its co-editor. He is a Fellow of the Society for Technical Communication (STC) and a Fellow of the Association of Teachers of Technical Writing (ATTW).

Kramer-Simpson, Elisabeth: Assistant Professor of Technical Communication, received her PhD from University of New Hampshire in Composition Studies with an emphasis on Second Language Writing. She teaches Technical Writing and Introduction to Technical Communication at New Mexico Tech. She is also the director of the Technical Communication Program. Her research interests focus on pedagogical techniques that lead to learning such as written response to student writing.

Lima, Manuel: A Fellow of the Royal Society of Arts, nominated by Creativity magazine as "one of the 50 most creative and influential minds of 2009", Manuel Lima is the Design Lead of Codecademy.com, the founder of VisualComplexity.com, and a regular teacher of data visualization at Parsons School of Design. With over 10 years of experience designing digital products, Manuel has worked for Microsoft, Nokia, R/GA, and Kontrapunkt. He holds a BFA in Industrial Design and a MFA in Design & Technology from Parsons School of Design, New York. During the course of the MFA program, Manuel worked for Siemens Corporate Research Center, the American Museum of Moving Image and Parsons Institute for Information Mapping in research projects for the National Geo-Spatial Intelligence Agency. Manuel is a leading voice on information visualization and has spoken in numerous conferences, schools and festivals around the world, including TED, Lift, OFFF, Eyeo, Ars Electronica, IxDA Interaction, Royal College of Art, NYU Tisch School of the Arts, ENSAD Paris, University of Amsterdam, MediaLab Prado Madrid. He has also been featured in various magazines and newspapers, such as Wired, New York Times, Science, BusinessWeek, Creative Review, Fast Company, Forbes, Grafik magazine, SEED, Étapes, and El País. His latest book *Visual Complexity: Mapping patterns of information* has been translated into French, Chinese, and Japanese.

Longo, Bernadette: Associate Professor and Director of the MS in Professional and Technical Communication in the Department of Humanities and Social Sciences at New Jersey Institute of

Technology. Her recent work explores impacts of mobile phones on small farmers and artisanal miners in Katanga Province, Democratic Republic of Congo. Dr. Longo uses a cultural studies approach to understand technical communication practices situated within particular contexts, mediated by technological devices. This cultural studies approach was exemplified in her first book *Spurious Coin*. Her efforts were later recognized in two 2006 collections she co-edited with Blake Scott and Katherine Wills, one of which won the NCTE Award for Best Edited Collection in Scientific and Technical Communication (*Critical Power Tools*).

Mazumdar, Subhasish: Associate Professor of Computer Science & Engineering. He received his B.Tech (Honors) and M.E. (Distinction) in Electronics and Electrical Communication from the Indian Institute of Technology (IIT) Kharagpur and Indian Institute of Science, Bangalore respectively; his M.S. and Ph.D. degrees in Computer Science were from the University of Massachusetts, Amherst. He is fascinated by the challenges we all face in modeling, managing, inferring, and learning from data sources that surround us and from the information conduits that we are immersed in. He regularly teaches courses on algorithms, databases, and data management. His research deals with topics related to mobile, distributed, and heterogeneous data, data in documents, and information implicit in the citations appearing in research articles.

Newmark, Julianne: associate professor of English at New Mexico Tech, teaches courses in writing, technical communication, and American and Native American literature. She serves as the editor of the ejournal *Xchanges*. Her research focuses on early-twentieth-century Native textual activism and on the impacts of specific United States legislative actions on indigenous writing. She also has published articles on the integration of ejournal-production as a client project in a technical communication curriculum and the benefits of multimodal online publication.

Pias, Sally C.: Assistant Professor of Chemistry (2012- present). BA with highest honors, majors in Religion and Chemistry, from Emory University in Atlanta, GA (1998); Peace Corps Volunteer in Bangladesh (1998-2000); MA with distinction in Jewish Studies, with additional coursework in South Asian Religions, from Emory University (2003); PhD in Chemistry with a Biochemistry emphasis from New Mexico State University in Las Cruces, NM (2009); Computing Innovation Postdoctoral Fellow at Stony Brook University (the State University of New York) in Stony Brook, NY (2009-2011). Current research uses computer simulations to investigate biomedically significant molecular mechanisms, such as the role of cholesterol in cancer pathology and the significance of saturated fat as a promoter of insulin resistance. Interested in drawing on digital humanities collaborations to generate new ways of visualizing and understanding molecular data.

Rogelj, Snezna: Ph.D. in Biochemistry from Boston University School of Medicine (1985), Postdoctoral Fellow (4 years) Robert A. Weinberg laboratory at the Whitehead Institute (MIT) in Boston, Lecturer (1 year) a Scientist (3 years) Astra Research Centre, Bangalore, India, Research Associate and Research Assistant Professor (5 years) at the University of New Mexico Medical School, Department of Pathology and is now a Professor and Chair of Biology at NMT. Dr. Rogelj has successfully administered numerous federally and private-company-funded research projects and currently serves as the NMT INBRE liaison and as a director of the NIH INBRE chemical Biology Screening Core. She has participated in student-mentoring projects

(e.g. 5 years of REU participation, 6 years of NMT administration of the NIH BRIDGES Program for minority graduate students). Dr. Rogelj trained an excess of 50 undergraduate students; almost 80% of those have either completed, are enrolled, or have been accepted, into a doctoral program and 14 of these undergraduates published in peer-reviewed journals. She graduated 25 Biology MS students; >60% of these have continued on to doctoral programs. She mentored 3 post-docs and co-advised 28 MS or PhD students in Biology and other NMT departments. Since her research topics span a broad spectrum (immunosuppressive effects of pesticides and environmental pollutants, biomimetic CO_2 sequestration, development of molecular biosensors; pathogen detection via immune-PCR and phage display; development of light-activated antimicrobial nanoparticles; biological/biochemical approaches to mitigation of biofouled membranes, characterization of nanoparticle toxicity, development and validation of novel antimicrobial materials, development of novel anti-bacterial and anti-cancer drugs that resulted in multiple patents) of health-related topics, she is particularly aware of the importance of effective communication with general audience, her peers and her students. Her peer-reviewed publications have been cited more than 3300 times.

Samuels, Mark Chasins: Associate Professor of Psychology. Chair of Psychology, Education and the Masters of Science Teaching (MST) program at New Mexico Tech. BA's in Psychology and Anthropology from the State University of New York at Albany. MA in Human Development from the University of Chicago, PhD in Experimental Psychology from New York University, Postdoctural fellow at New York University Medical Center. Conducts research in cognitive development, memory, biases in reasoning, problem solving and testing. Has also conducted research on rehabilitation from strokes and children's developing conceptions of mind. Teaches courses in Developmental Psychology, Social Psychology, Humans factors in Science and Engineering, Experimental Psychology and Cognitive Psychology

Simpson, Steve: Assistant Professor of Communication, received his PhD from the University of New Hampshire. He teaches Technical Writing, Communication in the Sciences (for graduate students), ESL, and Research and Documentation for Teachers (MST), in addition to working with the New Mexico Tech Writing Center. His research interests include second language writing, graduate student writing, situated learning theory, technical writing, and technology and pedagogy. He currently serves on the CCCC Committee on Second Language Writing, a national committee that advises writing programs on how to meet the needs of multilingual students in higher education.

Tartis, Michaelann: Associate Professor of Chemical Engineering, Dual Appointment in Materials Engineering, Adjunct in Biology. BS in Chemical Engineering from New Mexico Tech, PhD in Biomedical Engineering from University of California at Davis, Post-Doc at the Center for Molecular and Genomic Imaging at the University of California at Davis. Current research is engineering targeted drug delivery vehicles, specifically lipid-based delivery vehicles for cancer therapy using ultrasound. She has been a Pilot Project PI in INBRE collaborates with Dr. Snezna Rogelj in Biology and Dr. Liliya Frolova in Chemistry and hopes to forge new collaborations with Dr. Sally Pias and other new faculty in Chemistry. Other ongoing research in collaboration with Sandia National Laboratories is in the field of biosensor development, utilizing silica encapsulation of whole cells.

7. DATA MANAGEMENT PLAN

All Data Management is part of the responsibilities of the PI. Should the PI leave the institution, the responsibility for data management will move to a designated Advisory Board member.

Expected data: We expect to generate three types of data: educational materials, collaborative research data and publications, and public information.

> Educational: all curricular materials developed for educational use will remain the property of the participating faculty member(s), be secured on NMT servers, and be accessible to NMT students and faculty only

> Collaborative research: all data generated will be disseminated as appropriate. For example, journal articles will follow the publications policies of the journal (with an open access version if permitted). Should data be included that is generated through funding from another source, the more limited rules will apply.

> Public information: public educational data will be openly accessible through an NMT portal build for this purpose

Period of data retention: educational curricular materials and public information will be distributed within the grant period, after testing and evaluation. Collaborative research data will be published as soon as possible.

Data formats and dissemination: Educational data will be disseminated using NMT's Moodle and Distance Education online formats. Both are accessible only to enrolled students and may be made accessible to other faculty. Journal and conference papers will be made available through the Skeen Library's *Discovery* access portal (publisher permission pending). Public educational materials will be open access through the NMT website and DE (Distance Education) Portal.

Data storage and preservation of access: All data will be stored on NMT servers and, unless individually owned, made accessible through the DE Portal.
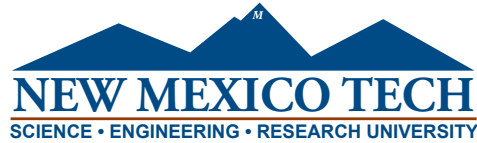
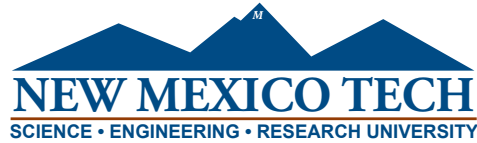August 28, 2013

To Whom It May Concern:

With this letter, I would like to affirm my commitment to the digital humanities efforts at New Mexico Tech especially to the initiatives described in the current proposal. Having been involved in the group discussions out of which this proposal has grown I intend to continue my participation.

Cordially,

Paul Barrientos

focused education in science and engineering

Department of Communication, Liberal Arts, and Social Sciences
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July 13, 2012

To Whom It May Concern:

I am delighted to affirm my commitment to the digital humanities efforts and projects at New Mexico Institute of Mining and Technology. I am particularly enthusiastic about supporting the initiatives described in this proposal. Because of our students' keen interest in technology and digital access; I believe that the digital humanities will find a good home at the New Mexico Institute of Mining and Technology.

During the past summer, I have been actively participating in the group discussions which spawned this proposal and I intend to remain an active participant in this project. As the campus librarian, I also intent to have the Skeen Library collect, store, and distribute the digital projects that this project will eventually produce.

There are all kinds of exciting and promising outcomes that could develop from our new cross disciplinary digital humanities group. I am really looking forward to having the university acquire the resources that we need to start developing resources in this area.

Sincerely,

Lisa Beinhoff, Ph.D.
Director of the Joseph R. Skeen Library

focused education in science and engineering

Department of Communication, Liberal Arts, and Social Sciences
C.L.A.S.S • 801 Leroy Place • Socorro • New Mexico • 87801 • Telephone: 575.835.5445 • FAX: 575.835.5544
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Educational Outreach
& Distance Instruction

Aug. 27, 2013

To Whom It May Concern:

With this letter, I would like to affirm my commitment to the digital humanities efforts at New Mexico Tech and, more specifically, to the initiative described in the current proposal. I have been involved in planning for the initiative since its earliest meetings and, in my position as a provider of online resources at New Mexico Tech, can promise the support of my department in creating the Digital Humanities Portal detailed in this proposal.

I am excited at the ideas relating to digital humanities under discussion at Tech. I believe the planned Digital Humanities Portal could be a model for other such sites and will broaden the scope of the project to users worldwide.

Iver Davidson, Ph.D.
Director
Educational Outreach and Distance Instruction
New Mexico Tech

focused education in science and engineering

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Humanities and Social Sciences

NJIT
New Jersey's Science & Technology University

COLLEGE OF SCIENCE & LIBERAL ARTS

August 25, 2013

Rosário Durão, Ph.D.
Dept. of Communication, Liberal Arts, Social Sciences
New Mexico Tech
Fitch Hall, Room 105
Socorro, NM 87801

Dear Dr. Durão:

Please take this letter as a commitment to support the "Humanizing Tech/nology" project and the Education Cluster. As you know, my efforts teaching and coordinating technical writing courses for engineering and science students are very much in line with this project's goals. And NJIT's Humanities Department, with its extensive service of the Institute's STEM student body, will prove a productive site in the development and testing of project materials. I foresee outcomes of the project benefiting both our institutions and the broader community of STEM education.

I look forward to working together.

Sincerely,

Dave Kmiec, Lecturer
Department of Humanities
New Jersey Institute of Technology
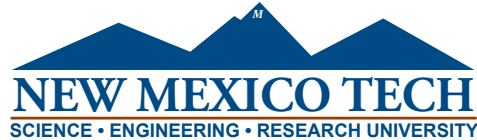
To Whom It May Concern

This is to confirm my interest in the activities in the area of digital humanities that are enumerated in the proposal. I was part of the group that, through meetings and discussion, has helped crystallize this proposal. I am enthusiastic about leveraging the close connection between Computer Science and various aspects of Digital Humanities in order to build new avenues in research and teaching. In particular, I would like to start out exploring the prospects of collaborative ventures in the computational applications of language understanding and human-computer interaction.

(Subhasish Mazumdar)

Associate Professor
Chair of Computer Science & Engineering

August 26, 2013

23 August 2013

To Whom it May Concern:

Please consider this letter my statement of commitment to the grant proposal "Humanizing Tech/nology: A Proposal to Integrate Humanities on a STEM-Campus and Beyond." As an English professor, I am excited to participate in the grant's proposed "collaborative clusters" between "Humanities, Computer Science & Engineering, Biology, and Chemistry," which will produce unique and fruitful "research and teaching opportunities."
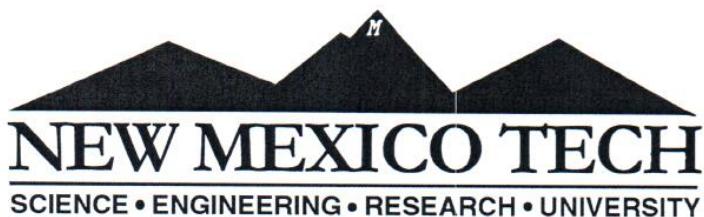
Sincerely,

Julianne Newmark

Sally C. Pias

Assistant Professor of Chemistry
New Mexico Tech
801 Leroy Place
Socorro, NM 87801
Tel: (575) 835-6204 Fax: (575) 835-5364
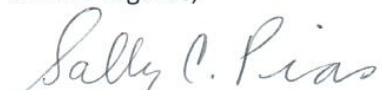E-mail: spias@nmt.edu

August 23, 2013

Dr. Barbara Bonnekessen
Associate Professor of Social Sciences
Department of Communication, Liberal Arts, Social Sciences
New Mexico Tech
801 Leroy Place
Socorro, NM 87801

Dear Dr. Bonnekessen:

With this letter, I would like to affirm my commitment to the digital humanities efforts at New Mexico Tech and, specifically, to the initiatives described in the current proposal. I have been involved actively in the group discussions out of which the proposal has grown, and I intend to continue my participation. As an indicator of my interest and commitment, I would like to note that I already have spoken with an undergraduate student in Chemistry about the possibility of pursuing a digital-humanities-related molecular simulation data visualization project as the topic of her Senior Thesis work with my research group.

I am excited about the new ideas arising from the nascent digital humanities group at New Mexico Tech, and I look forward to developing productive research collaborations as we acquire the resources to bring some of our ideas to fruition.

Sincere regards,

Sally C. Pias

Sally C. Pias

TO: Dr. Barbara Bonnekassen
        Associate Professor and Chair
        Department of Communication, Liberal Arts, and Social Sciences
        New Mexico Institute of Mining and Technology
        Socorro, New Mexico 87801
        Phone: 575-835-5181
        Email: bonnekassen@nmt.edu

FROM: Snezna Rogelj, Ph.D.
        Professor and Chair of Biology
        Jones Annex 315
        New Mexico Institute of Mining and Technology
        Socorro, New Mexico 87801
        Phone & FAX: 575-835-5608
        Email: snezna@nmt.edu

August 26th, 2013

Dear Barbara,

I am delighted to offer my commitment of support to your "Humanizing Tech/nology: A proposal to integrate Humanities on a SRTEM-Campus and Beyond" proposal. I have participated in our group discussions since the inception of the very first ideas that now have grown into the exciting initiatives described in the current proposal. I look forward to my active participation in both Cluster Examples and the development of the described final products. Above all, I look forward to working with the humanities and the STEM students involved the proposed projects. In fact, I was already pleasantly surprised by the interest engendered in my non-conventional, interdisciplinary senior/graduate level "Freestyle Biology" class when I off-handedly mentioned your proposed ideas last week; students from Physics, Math, Chemistry, Chemical Engineering, Psychology, Materials Engineering and Biology wished to see your draft, and, as I mentioned to you already, one senior (whose classes and research activities span astronomy, geology, physics and biology) is hoping to meet you in person and learn more about this project.

I look forward to our, hopefully frequent, future interactions and to my own learning during this mutually-beneficial and inspiring process.

Snezna Rogelj

1

Date: August 25, 2013

To: National Endowment for the Humanities: Digital Humanities Start Up Grants
            Selection Committee

From: Michaelann Tartis – Associate Professor of Chemical Engineering, Materials
            Engineering and Adjunct in Biology

Re: Letter of commitment to the proposal titles "Humanizing Tech/nology"

Dear Selection Committee,

I write this letter to confirm my commitment to the proposal titled "Humaninzing Tech/nology:
A Proposal to Integrate Humanities on a STEM Based Campus and Beyond." While I support all
of the aims and activities proposed, as an interdisciplinary STEM researcher, I am especially
interetesed in humanizing the presentation and dissemination of research by developing cutting
edge technologies for visualization.   These tools would be especially useful in training students
in the research and the classroom setting. Our engineers need not only to have command of the
technical aspects of their job, but also in communicating that knowledge effectively as they
design solutions for cutting edge technical problems.

Dr. Rosario Durao, one of the proposal's co-PIs, is teaching a data visualization course this
semester. When I saw this course offering, I encouraged 3 of my research students to take the
course at both the undergratuate and graduate level. I believe this will help them become better
researchers and engineers and provide a perspective that is often over looked in an already overly
booked engineering curriculum. I hope this portrays one example of my support at this early
stage.

Thank you for your time and consideration,

Michaelann Tartis
Associate Professor
New Mexico Tech, Chemical Engineering
801 Leroy Pl, Socorro, NM 87801
(575) 835-5761 mstartis@nmt.edu

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Department of English
203 Ross Hall
Ames, Iowa 50011-1201
515-294-4455
Fax 515-294-6814

28 August 2013

Dear Program Manager:

As I member of the Rhetoric and Professional Communication program at Iowa State University, I am happy to participate in the grant proposed by Barbara Bonnekessen and Rosário Durão entitled "Humanizing Tech/nology: A Proposal of Integrate Humanities on a STEM Campus and Beyond."

I look forward to participating in the "Visualizing STEM Research Cluster" or "Education Cluster," either of which can be implemented on my campus and evaluated through alpha testing, as outlined in the proposal.

Sincerely,

Professor
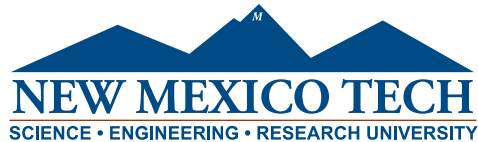
August 28, 2013

To whom it may concern,

I am writing to confirm my participation in the digital humanities project, Humanizing Technology: A Proposal to Integrate Humanities on a STEM-Campus and Beyond. With my background in education as well as English and humanities, I am excited to explore ways to support secondary teacher development in the Education Cluster of this project. I plan to provide opportunities that teachers-in-training at NMT can incorporate digital humanities into their stem classrooms (for example, designing visuals of a cell cycle in biology) and will design outreach and resources for other secondary teachers already teaching STEM. As my research and training has a heavy education focus, this project fits well within my goals and I am anticipating engaging collaborations with secondary teachers in STEM.

Sincerely,

Elisabeth Kramer-Simpson
Assistant Professor
Technical Communication

focused education in science and engineering

Department of Communication, Liberal Arts, and Social Sciences
C.L.A.S.S • 801 Leroy Place • Socorro • New Mexico • 87801 • Telephone: 575.835.5445 • FAX: 575.835.5544
New Mexico Institute of Mining and Technology is an EEO-AA Institution

GRANT11481492 -- Attachments-ATT8-1241-Letters of Commitment.pdf

Codecademy

49 West 27th Street, 4th Floor
New York, NY 10001

To Whom It May Concern:

This letter attests my utter pleasure to be part of the Humanizing Tech/nology project, the Visualizing STEM Research Synergy Cluster, and the evaluation progress of the cluster through alpha-testing.

Best Regards,

Manuel Lima

New Jersey Institute of Technology
University Heights
Newark, NJ 07102-1982
123.456.789
123.456.7890 fax
email@njit.edu

Humanities and Social Sciences

August 25, 2013

Rosário Durão, Ph.D.
Dept. of Communication, Liberal Arts, Social Sciences
New Mexico Tech
Fitch Hall, Room 105
Socorro, NM 87801

Dear Dr. Durão:

Thank you again for your invitation to participate in the "Humanizing Tech/nology" project. I am delighted to be part of this project team to work with the Education Cluster. As we discussed, the "Humanizing Tech/nology" project works well with plans I already had to develop and deliver educational content for technical communication via open-access, online channels. The work we do with the "Humanizing Tech/nology" project will definitely become part of our resources here at New Jersey Institute of Technology. I will be pleased to participate in alpha testing materials we develop with other faculty and students in our department.

I look forward to working with you and the whole team on this project.

Sincerely,

Bernadette Longo

Bernadette Longo, Associate Professor
Director, MS in Professional and Technical Communication
Department of Humanities
New Jersey Institute of Technology

August 26, 2013

Dear Office of Digital Humanities

I would like to confirm my role in the Digital Humanities Collaborative Proposal at New Mexico Tech. I have been an active participant in the discussions regarding this proposal and am very excited about this project. As the Chair of the Psychology and Education department at NMT, I see this collaboration as serving a core need in training students and teachers in our Alternative Licensure (ALP) and Master of Science for Teachers (MST) programs. I foresee a great deal of participation from the students in our programs. As part of this grant, the teachers in our program will develop educational modules to present interactive materials to their students. Our teachers will implement and test these modules in their classrooms. We are very excited about the opportunities this project has to offer and look forward to a very productive research collaboration.

                   Sincerely yours,

                   Dr. Mark Samuels
                   Associate Professor and Chair
                   Department of Psychology, Education and Masters of
                   Science Teaching
                   New Mexico Tech

Department of Psychology & Education ·801 Leroy Place ·Socorro, NM 87801-4796
(505) 835-5216 FAX: (505) 835-5826
New Mexico Tech is an Equal Opportunity/Affirmative Action Institution

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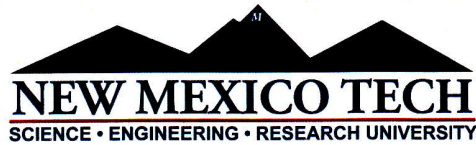
National Endowment for the Humanities
Office of Digital Humanities

August 28, 2013

To the members of the Digital Humanities grant review board:

I am writing to indicate my commitment to the "Humanizing Tech" project in general and to the "Education Cluster" in particular. My own research, published in journals such as *Research in the Teaching of English* and *WPA: Writing Program Administration*, focuses on integrating communication and STEM instruction, which makes the "Humanizing Tech" project very relevant to my research program.

More directly, though, I teach a required course through the Master's of Science for Teachers program at NMT in which I help k-12 math and science teachers develop ideas for their capstone Independent Study projects. Due to the new Common Core literacy standards, many of these teachers are scrambling to find new and creative ways to integrate reading and writing into their math and science curricula. The goals for the Education Cluster align well with my own goals for this class.

Sincerely,

Steve Simpson, PhD
Assistant Professor of Communication,
Writing Center Director

focused education in science and engineering

Department of Communication, Liberal Arts, and Social Sciences
C.L.A.S.S • 801 Leroy Place • Socorro • New Mexico • 87801 • Telephone: 575.835.5445 • FAX: 575.835.5544
New Mexico Institute of Mining and Technology is an EEO-AA Institution

Budget Form

NATIONAL ENDOWMENT FOR THE Humanities

Applicant Institution: *New Mexico Tech*
Project Director: *Barbara Bonnekessen*
Project Grant Period: *5/1/2014 - 11/30/2015*

click for Budget Instructions

	Computational Details/Notes	(notes)	Year 1 05/01/2014-12/31/2014	(notes)	Year 2 01/01/2015-11/30/2015	(notes)	Year 3 01/01/20__-12/31/20__	Project Total
1. Salaries & Wages								
		%		%		%		$0
Graduate Student worker	20 hrs/week @ $16/hr	%	$10,240	%	$14,080	%		$24,320
		%		%		%		$0
		%		%		%		$0
		%		%		%		$0
		%		%		%		$0
2. Fringe Benefits								
for graduate student @ 2%			$205		$282			$486
								$0
3. Consultant Fees								
								$0
4. Travel								
PI Planning Meeting Washington,	Airfare, hotel, other transportation, r		$1,700					$1,700
								$0
5. Supplies & Materials								
Consumable supplies (meetings refreshments)	19 meetings @ $50 each		$722		$872			$1,594
6. Services								
Website hosting			$800		$1,100			$1,900
7. Other Costs								
								$0
8. Total Direct Costs	Per Year		$13,667		$16,334		$0	$30,000
9. Total Indirect Costs								
Waived	Per Year		$0		$0		$0	$0
10. Total Project Costs		(Direct and Indirect costs for entire project)						$30,000

11. Project Funding	**a. Requested from NEH**	
	Outright:	$30,000
	Federal Matching Funds:	$0
	TOTAL REQUESTED FROM NEH:	**$30,000**
	b. Cost Sharing	
	Applicant's Contributions:	$0
	Third-Party Contributions:	$0
	Project Income:	$0
	Other Federal Agencies:	$0
	TOTAL COST SHARING:	**$0**
12. Total Project Funding		**$30,000**

Total Project Costs must be equal to Total Project Funding ----> ($30,000 = $30,000 ?)

Third-Party Contributions must be greater than or equal to Requested Federal Matching Funds ----> ($0 ≥ $0 ?)