Master's Degree in Historical & Cultural Visualization
Revised FV and Including all APC and ECAC suggestions, 5 October 2013

Presented by

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Master's Degree in Historical and Cultural Visualization

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MASTER'S DEGREE IN HISTORICAL AND CULTURAL VISUALIZATION

1   **Introduction**

A Master's Degree in Historical and Cultural Visualization will prepare students for the 21st century by integrating the study of historical disciplines and cultural artifacts with new digital technologies to represent cutting-edge research. The MA is designed to train students who are interested in and preparing for careers or graduate work in art and architectural history, art history, archaeology, historical conservation and preservation, urban studies, urban planning, and other related fields that concern material culture or the constructed environment. The MA in Historical and Cultural Visualization will build on existing courses and well-developed strengths at Duke University to provide students with experience at the interface of historical material culture and new media. It will also offer an excellent complement to the Ph.D. and other advanced degrees in either the Humanities (Art History, Archaeology, Classics, Religious Studies), in the Social Sciences (Anthropology, History) or in professions such as City Planning and Architectural Design.

Although there are numerous programs in the Digital Humanities, few universities offer what we propose: a program to train the next generation of scholars in art history with hands-on experience in digital technologies integrated with advanced research in historical material culture.   Excavations, city museums, and tourist offices are increasingly producing digital reconstructions, but most scholars themselves are not yet being trained to make and critically use three-dimensional digital technologies. At Duke we are deeply committed to the idea that new media permit us to *think differently* about historical and cultural materials; it is the integration of this new conceptual practice with Historical and Cultural Visualization that we seek to promote in this M.A. degree and its associated courses.

Since 2009 the **Wired!** Group at Duke University has integrated visualization technologies into courses across a wide range of fields using a diverse toolset; 3D modeling, laser scanning, photogrammetry, database modeling, geo-aware archival databases, and various mapping technologies. We have international projects with universities and research institutions in Europe, and are introducing a natural-human systems research initiative with colleagues in the Environmental Sciences. We have designed a series of courses that enlist students in the scholarly use of technologies starting in their first years at Duke; these technologies can be integrated into other courses or with on-site research and study.

2   **Background**

Digital tools are rapidly transforming the ways we collect, interpret, reconstruct and represent data. Like the invention of printing and photography, they provide new ways to understand and communicate information about the world. They are particularly well suited to gathering and interpreting large data sets on historical materials, such as archives or archaeological excavations. They are increasingly fundamental for the reconstruction of destroyed or partially extant architectural and archaeological artifacts. 3D modeling can also permit us to experience an object in its (virtual) original settings or reconstruct partially destroyed sculpture. Digital tools can also be used to reimage the spatial frame of human activity, placing processions and liturgy in context, or projecting building phases, reconstituting lost urban patterns. There is immense potential for effective public-facing communication of complex site-related data. Above all, digital tools help us represent full documentation of the evidence for a historical analysis (texts, moldings, photographs, excavation data).

This is thus a pivotal moment: digital technologies now offer an opportunity for new and different kinds of intellectual engagement with evidence and the interpretation of research. There are profound implications for teaching and scholarship. New technologies stimulate entirely new questions and have immense potential for rethinking the traditional ways in which institutions organize and teach historical materials within the disciplines of Art History, Archaeology, and Urban and Architectural History, among others.   We may now even be able to consider a shift from the present "taxonomy" of knowledge bases to enterprises that allow for the study of places and objects in the nexus of social, economic, environmental and religious change. We can engage with the issue of representing change over time, for example in the function of ritual space, and the evolution of built landscapes in relation to the natural environment. Digital technologies permit the student and scholar to model environments *as they were used*, and to reconstruct the context of objects in relation to space; they introduce and represent fluid notions of time and change to the history of material culture. Equally important, these new tools are a highly effective means for the communication of research to the general public through websites and "apps."

The Wired! Group has been a leader in integrating digital technologies into teaching and research: we have been asked to present our work at numerous venues, and are consulted in national surveys on Digital Humanities. Although archaeologists have been making reconstructions for many years, in most cases they have employed outside experts who are engineers or architects. In these scenarios, making the representation has remained extraneous from the gathering of the evidence, whereas we strongly believe that it is precisely the process of "making" that transforms the research questions.

Our proposed MA in Historical and Cultural Visualization will build on our extensive experience in integrating *technology with the intellectual process of research (gathering*

data, testing hypotheses) and teaching in the Department of Art, Art History & Visual Studies. The new program will provide future scholars with practice in the selection and use of technical tools for the study and presentation of research of the historical past. In the past three years of this initiative, it is clear that the integration of technology into research and teaching prompts profoundly new types of questions about the evidence. It also offers remarkable opportunities for communicating complex narratives about the past to the public.

The Wired! Group and its faculty at Duke have been leaders in exploring the implications of the Digital Humanities for the study of historical material culture. In the past 5-10 years we have:

- deeply integrated new media tools into several key historical courses, experimenting with collaborative and inter-disciplinary team-teaching;

- inaugurated a series of technologically-intensive international research projects with colleagues in Europe that involve both research and teaching;

- been recognized as national leaders in historical and cultural visualization in theory and practice;

- been a core collaborator in the multi-year Mellon grant to build an integrated program in Visual Studies (http://visualstudies.duke.edu), which incorporates the work of digital artists, media theorists, visualization scientists, and art/architectural historians;

- received several multi-year grants for research initiatives from the National Endowment for the Humanities and the Delmas Foundation, as well the *Fondazione di Venezia*;

- established digital laboratories at Duke and at Venice International University, both of which are integrated into teaching and research initiatives.

In addition, during this current academic year (2013-2014), under the auspices of a Humanities Writ Large grant, we are transforming the faculty-based Wired! Lab research projects into collaborative, vertically integrated research communities. As an active participant in the collaborative research labs, students will gain a clearer idea of how to develop and pursue ideas and projects of their own. We are now working with ten undergraduate and two graduate research fellows, who are affliated with one of the faculty research projects. The fellows attend weekly workshops on digital tools, and we meet as a group each Friday afternoon in the Wired Lab (see http://www.dukewired.org/fellowships/. We have also taken a leadership role at

Duke in helping colleagues integrate teaching technology into their courses: see http://www.dukewired.org/event/syllabus-workshop/

Duke is uniquely well positioned to offer this program. The Departments of Art, Art History & Visual Studies and Classical Studies, as well as the Program in Information Science + Information Studies and the Visualization and the Visualization & Immersive Systems Group include faculty and research scientists who have been collaborating for some time on teaching historical and cultural materials with new technologies. The Visual Studies Initiative, supported by the Mellon Foundation, has emphasized the gathering of faculty who specialize in digital technologies. The recent appointment of Maurizio Forte as a joint appointment between Classical Studies and Art, Art History & Visual Studies has enriched the range of our teaching and areas of expertise into remote sensing.

In the spirit of the University's Strategic Plan, this Master's degree addresses Duke's commitment to advancing new models of collaboration and connection that build and showcase our distinction. It does this by bringing together faculty and graduate students in an interdisciplinary effort to create new knowledge about historical material culture *through* digital media's capacity to model spatial and temporal relations in innovative ways. It strengthens the arts by producing compelling visualizations that reach the broader global publics that encounter digital culture. **With new technologies, we can make the research and scholarship that takes place in the university come alive for the public; our work no longer need be restricted to a small scholarly audience.**

Opportunities for Vertical Integration: The MA in Historical and Cultural Visualization will enhance in important ways the course offerings for both our Ph.D. students and our most advanced undergraduates.   It will do so by offering courses in emerging technologies that have been developed specifically for historical materials, so that *all* our students will get a "leg up" in integrating new methods of interpretation into their research.   Our proposed MA degree will in effect simply concretize initiatives in this direction that are already taking place with support from the Mellon-funded Humanities Writ Large grant and Bass Connections. Examples of graduate and undergraduate collaborative projects can be seen in the website for "Wired!" http://dukewired.org.

3   **Degree Requirements**

The MA requires a total of 30 credit hours of graduate level coursework (8 graduate-level courses plus 2 research components). The final thesis product will demonstrate mastery of context appropriate historical visualization techniques, supplemented by a rigorous methods section and explanation of the project's significance to the relevant historical field. Students are expected to produce a project suitable for dissemination in a public, scholarly, museum, or other educational context, as would be appropriate for the individual student's anticipated career path.

When applying to the MA program, the applicant will identify a historical period and a research project (see full list in Appendix 1) in which they would like to participate. An aspect of this larger research project will form the basis for their MA thesis, and will inform the courses they take to fulfill their MA requirements. All students will take Visualization Core and Pro-seminar 1 and 2; and ARTHIST 543S, Methodology of Art History (the latter taught every fall by a faculty member in AAHVS). Most graduate courses are level 500 or above. Up to 6 graded credits can be advanced undergraduate course credits of Level 200-499.

The program would be organized as follows:

First Semester	Second Semester
Visualization Core and Proseminar 1	Visualization Core and Proseminar II
ARTHIST 543S: Methodology of Art History	Graduate Seminar
Graduate Seminar	Graduate Seminar
Related Elective	Related Elective
4 course = 12 credits	4 courses = 12 credits

Like our PhD students, we anticipate and expect that MA students will continue their research over the summer. Some of this work will be unstructured; other opportunities will emerge naturally through their close connections with our existing projects in the form of internships and possible summer grants.

Third Semester
Research Independent Study with primary advisor
Thesis Credit
2 courses = 6 credits

Courses

i   **Visualization Core and Pro-seminar I** The first part of this course introduces students to 2D and 3D imaging and modeling from raster and vector graphics sources, laser scanners, photogrammetric software, and basic database structures and their use. Students will also be introduced to digital mapping and GIS for the purposes of research and presentation. In addition, students will focus on developing skills in new media presentation strategies and design best practices for the web (standards-compliant HTML/CSS/Javascript), multimedia (audio/video/animation), scholarly annotation, and intellectual property considerations. The second part of the semester will introduce key theoretical and ethical issues in the field of new media and digital humanities, particularly as they pertain to the technologies and techniques explored in the Visualization Core. Topics will range from epistemological issues associated with mediation and visualization, the ethics of intellectual property, the politics of geospatial visualization, and theories about digital materiality and the affordances of new media narrativity (Olson).

ii   **Visualization Core and Pro-seminar II** The first part of the course (taught by VTG and Wired post-doc) introduces greater interactivity and content management through databases, collaborative blogs, and other online interactive packages. Students will also learn techniques for data visualization based on textual, image, and quantitative sources, as well as basic techniques for virtual reality and game-based systems development. Students are expected to begin to construct their MA project infrastructures during this course, and will work on mini-projects based on this research data as they progress through it as a way to jump-start final project work. The second part of the course will focus on discussing and providing support for both the historical and technical aspects of each project in the context of broader professional trends in historical & cultural visualization. The seminar will foster students' intellectual and professional development while providing a collaborative environment where students can learn from their peers. During this phase, students will clarify and finalize the topic of their MA thesis project, write their MA proposals, and engage with the theoretical and conceptual framing of the kind of work they propose to accomplish (Szabo).

NB: Both the Visualization Core and Pro-seminar I and II will also be open to Master's students of the MFA in Experimental and Documentary Arts, PhD students in Art History & Visual Culture and graduate students (PhD, MA) in Media Arts + Sciences.

iii   **ARTHIST 543S: Methodology of Art History. ALP, CZ, R, W** Various theoretical perspectives that have shaped different disciplinary perspectives and practices in art history. Introduction to particular types of methodologies (i.e. Marxism, feminism, race and gender, psychoanalysis, post-colonial theory, and deconstruction) as fields of inquiry through which the study of the visual arts and culture have been practiced. Historiography of the last two decades in art history; selected contemporary debates.

Instructor: Staff. One course. Taught every fall by faculty in AAHVS. **NB: we have sufficient Art History faculty to offer two separate sections of this course if necessary and still cover our undergraduate and graduate curricula.**

iv   **Required Graduate seminars:** Each student will be required to take 2 graduate seminars that integrate the study of the material past with training in digital technologies. These courses can be clustered within a certain field (ancient cities and archaeology, for example), or may range across a wide range of historical topics.

v   **Electives:** Each student will be required to take 2 elective courses that include: Historical courses that do not integrate digital technologies but that relate to the student's research project. Up to 6 graded credits can be advanced undergraduate course credits of Level 200-499. *Course projects undertaken by MA students in these courses should include a digital component whether or not the course itself is focused on that area.*
Existing courses in the visual and new media arts and/or computational humanities that focus on a more specialized set of methods and technology tools appropriate for the students' independent MA projects, such as drawing and design classes, Photoshop, ArcGIS, Processing, physical computing, advanced 3-D modeling and animation, motion graphics, and digital video.

vi **Thesis**
Each student will complete their MA thesis project during the third semester, under the supervision of their primary advisor. This research will be a component or a related aspect of an on-going research project in which the faculty is already involved (see Appendix 1), and will demonstrate the student's ability to collect, arrange, interpret, and report pertinent material on a research problem. The final product will consist of a substantial research paper (between 30-60 pages) with a supporting digital component that presents the results of this research in a way that is intelligible and accessible to the broader public. The MA thesis committee will normally be comprised of three members of the graduate faculty, and will be presented publicly at the Master's Defense (60-90 minutes).

4   **Core Faculty and Core Courses**
       Professor C. Bruzelius
               ■   **ARTHIST 590S: The Mendicant Revolution: the Friars in Late Medieval Europe. ALP** This course investigates the impact of the friars, Franciscans and Dominicans, on medieval life. These religious groups represented a new model of spiritual vocation that adopted apostolic poverty (hence "mendicant"). Through their aggressive mission of preaching, conversion and social service in the teeming medieval cities they transformed artistic and literary culture in the 13th and 14th centuries. The success of the friars brought literary and artistic

innovation, new ways of storing and organizing information, new forms of sculpture and painting, and new ways of building and shaping urban space. Yet their success also meant that they became the objects of an intense rivalry with the traditional clergy. This course will examine the social, economic, artistic and literary "revolution" that the friars stimulated, as well as the controversies and tensions that developed in their wake. Students will be expected to participate in class discussion on the reading, and each student will be responsible for one review of a book in the field and a final to be presented orally as well as in written or digital form. Students are encouraged to create a digital project that engages in the concept of change in the cities that had significant mendicant communities. Each student is expected post weekly questions or responses about the reading on the course blog. Instructor: Bruzelius. 1 course. C-L: Medieval and Renaissance Studies; English.

■   **NEW COURSE ARTHIST 5XXS: Death and Burial in the Medieval City**. **ALP, CCI CZ, R** In the Middle Ages the focus on personal salvation from purgatorial punishment through the strategies of intercessory prayer and strategic burial. This meant that tombs were now located in cities, and most specifically in the churches and cloisters of the religious institutions whose prayers for the soul were considered to be most efficacious. This course will use new technologies to map and model the impact of tombs on the design and construction of church space and its impact on the shapes of medieval cities. Instructor: Bruzelius

■   **VMS 335. The Art of Medieval Southern Italy. ALP, CCI, CZ, R** The art and architecture of southern Italy from the ninth through the fourteenth centuries. The wide range of cultural influences and mixtures of populations that characterized the Kingdom of Sicily and the impact of these rich and diverse importations on the art and architecture of the southern part of the peninsula. Special importance placed on the Islamic contribution to Italian art and its development under the Norman kings of Sicily. In this course students will use mapping technologies to trace the impact of the diverse religious and cultural communities of S. Italy. Instructor: Bruzelius. One course. C-L: ARTHIST 335; Medieval and Renaissance Studies 220

■   **ARHTIST 225. Gothic Cathedrals. ALP, CCI, CZ, R** Great cathedrals of Europe in England, Germany, and Italy, with a special focus on France, from roughly 1140 to 1270, and their construction, financing, and role in the fabric of medieval city life. The urban context of each city, the history of the site and its relics, and the artistic and technological developments that made the construction of these complex and large-scale structures possible. A consideration of Romanesque precedents

and the origins of the various structural elements of Gothic architecture. Instructor: Bruzelius. One course. C-L: Medieval and Renaissance Studies 215

Professor S. Dillon

■ **NEW COURSE ARTHIST 5XXS: Death and Burial in Ancient Athens. ALP, CCI, CZ, R** In Athens, where the dead were buried changed over time. In the early Iron Age the dead were sometimes buried close to the houses of the living in order to establish ancestral claims. With the rise of the Athenian polis and the increase in population, the dead were banished to the urban periphery, typically interred outside the city walls. These ancient burial grounds were not bounded cemeteries, however, as mixed in with the tombs were workshops, meeting places, and houses of prostitution. The course explores the changing locations and methods of burial and the shifting practices of commemorating the dead in the city of Athens from the Iron Age (9th c. BCE) until late Antiquity (6th c. CE). We use new technologies to map and model the impact of the dead on the shape of the ancient city. Instructor: Dillon. One course. C-L: CLST 5XXS

■ **ARTHIST 208: Art and Archaeology of Ancient Athens**. ALP, CCI, CZ Monuments, archaeology, art, and topography of ancient Athens from the Archaic to the Roman period. Examination of the physical remains of the city and countryside to trace the development of one of the most important city-states in the Greek world and to understand its impact on western civilization. Case study in understanding the role of archaeology in reconstructing the life and culture of the Athenians. Instructor: Dillon. One course. C-L: Classical Studies 248

■ **ARTHIST 501S: Greek Art and Society: Archaic To Classical**. ALP, CCI, CZ, R Main categories of buildings, monuments, and images most characteristic of ancient city life in fifth and fourth centuries BCE. Range of material studied: city plans, temples, statues, reliefs, painted pottery. Emphasis on archaeological and historical contexts; questions and themes concern relation of new forms of public building and representation to changing historical circumstances. Fifth century made decisive break with archaic visual modes; area of special investigation is swift emergence and consolidation of revolutionary way of seeing and representing known as 'classical art'. Instructor: Dillon. One course. C-L: Classical Studies 541S

■ **ARTHIST 502S: Greek Art and Society: Hellenistic ALP, CCI, CZ** Greek world expanded by Alexander's conquests into western Anatolia and north-western India. Material and visual culture of important sites and

characteristic buildings, monuments, images. Particular attention paid to: recent discoveries at Vergina and Pella; royal capital of Attalid Pergamon; city-states of Athens and Priene; Egyptian and Greek interaction in Ptolemaic Alexandria and Egypt. Other important subjects include: the Hellenistic royal image on coins and in statues; colonial settlement, such as that at Ai Khanoum in north-east Afghanistan; changes in honorific and funerary representation. Course also looks at late Hellenistic Delos and mass export of Hellenistic material. Instructor consent required. Instructor: Dillon. One course. C-L: Classical Studies 542S

Professor Maurizio Forte, AAHVS & Classical Studies

■ **CLST 590LS Special Topics in Roman Archaeology: Roman Landscapes. ALP, CZ** Landscape Archaeology studies the entire range of relations between humans and environment through the analysis of different societies, and by referring to various ecological, cognitive and cultural models. The course will study multidisciplinary aspects of these relations, with particular emphasis on the recognition and analysis of human settlements of Roman archaeological rural landscapes. More specifically, we will analyze human patterns and environmental features characterizing the transformations of rural landscapes in Republican and Imperial times such as: roads, topography, landmarks, crop marks, centuriation, imperial villas and humans settlements. Moreover, the course will integrate a top-down and bottom-up approach: bottom-up intended as identification of archaeological evidence; top-down intended as diachronic interpretation and reconstruction of the landscape. The ultimate goal will be a cognitive survey of the Roman mind, its affordances, canons and multivocal relations with the environment. The seminar, which also includes lab activities, involves the use of digital remote sensing technologies and aerial photography for the analysis and interpretation of landscape: different case studies focusing on Roman landscapes in Italy will be studied and discussed. Instructor: Boatwright or Forte. One course. C-L: Art History 590S-10

■ **ARTHIST 275LS: Reconstructing Ancient Worlds**. CCI, CZ, R, STS Extraordinary growth of information and digital technologies in archaeology raises urgent new questions about research methodology, knowledge and dissemination of culture. Technologies of 3D acquisition and representation - computer vision, photogrammetry, laser scanning - create information with a complexity unimaginable a few years ago. Course explores multidisciplinary issues, methods and technologies in virtual and cyber archaeology and reconstruction of the past. Examines methodology of archaeological research, digital integrated technologies, virtual archaeology, archaeological excavation, virtual reality,

archaeological and anthropological landscapes. Instructor: Forte. One course. C-L: Classical Studies 252LS, Visual and Media Studies 275LS

■ **CLST 144: Principles of Archaeology. CCI, EI, CZ** Archaeology is generally intended as study of the past (past societies, ancient civilizations) through its material evidence: sites, artifacts, ecofacts, landscapes and cities. Its roots are in the study of ancient history, art history, anthropology and other fields, but it is also a discipline in its own right, with its own problems, methods and theory. Actually. it is also strongly connected with contemporary society since the idea of past is related to ethical issues, conflicts, ideologies, development and nationalism. The course is designed to introduce the discipline broadly but with a strong emphasis on the new methodologies of research: remote sensing, geophysics, 3D reconstructions, virtual reality, 3D modeling and digital documentation. During the course several case studies will be examined across the world from the beginnings of domestication of plants and animals, to complex societies. More specifically we will travel back in time in the Anatolian Neolithic, the Western Han Dynasty, the Maya, Inca, Roman and Greek worlds. Instructor: Antonaccio or Forte. One Course

Professor S. Galletti

■ **ARTHIST 590S: Special Topics – Architectural Theory, Antiquity to the Renaissance. ALP, CZ** This seminar focuses on architectural theory as produced, disseminated, and received in the pre-modern world, and on the connections between the theory and the practice of architecture. It covers a wide temporal span between the first century BC, when Vitruvius Pollio wrote his *De architectura libri decem* [The ten books on architecture], to the Middle Ages and the spreading of pattern books, to the all-encompassing architectural treatises of the Renaissance, such as Leon Battista Alberti's "De re aedificatoria" [On architecture, 1485], Sebastiano Serlio's "Libri d'architettura" [Books on architecture, 1537-1575], Philibert Delorme's "Premier tome de l'architecture" [First book on architecture, 1567], Andrea Palladio's "Quattro libri dell'architettura" [Four books on architecture, 1570], etc.. The objective of the course is to insure solid and broad knowledge of pre-modern architectural theory and practice, related historiography, contemporary debate and scholarship as well as to develop students' independent analytical and research skills. Instructor: Galletti. One course.

■ **ARTHIST 258: Renaissance Architecture in Italy: Brunelleschi to Michelangelo. ALP, CZ** Architecture, design, theory, engineering, construction, and the related arts, 1400-1600. The architectural production of the Italian Renaissance in its historical, cultural, social, and

economical context. Contributions of individual masters, including Brunelleschi, Alberti, Bramante, Leonardo, Raphael, Michelangelo, Palladio. Emphasis on architecture in Florence and Rome. Instructor: Galletti. One course. C-L: Italian 258, Medieval and Renaissance Studies 227

Professor M. Olson

■   **VMS 565S. New Media, Memory, and the Visual Archive. ALP, STS** Explores impact of new media on the nature of archives as technologies of cultural memory and knowledge production. Sustained engagement with major theorists of the archive through the optics of "media specificity" and the analytical resources of visual studies. Themes include: storage capacity of media; database as cultural form; body as archive; new media and the documentation of "everyday life;" memory, counter-memory, and the politics of the archive; archival materiality and digital ephemerality. Primary focus on visual artifacts (image, moving image) with consideration of the role of other sensory modalities in the construction of individual, institutional and collective memory. Instructor: Olson. One course. C-L: Information Science and Information Studies 565S, Policy Journalism and Media

■   **VMS 288 Fundamentals of Web-Based Multimedia Communications R, ALP, QS**. Multimedia information systems, including presentation media, hypermedia, graphics, animation, sound, video, and integrated authoring techniques; underlying technologies that make them possible. Practice in the design innovation, programming, and assessment of web-based digital multimedia information systems. Intended for students in non-technical disciplines. Engineering or Computer Science students should take Engineering 206 or Computer Science 290. Instructor: Lucic, Olson, Szabo

■   **VMS 266. Media History: Old and New. ALP, SS, STS** Development of various media forms in historical and social contexts. Impact of old "new" media on established art, commerce, education, politics, entertainment from 19th c. on. Changing ideas about authenticity, authority, agency, reception, identity, and power relating to emerging media forms, production, circulation. Overlaps, disjunctures, convergences, persistences and antiquations via case studies and examples. Technologies include print publishing, photography, audio recording, film, telegraph, maps, exhibitions, architecture and installations alongside contemporary web, multimedia, database, game, virtual reality, and telepresence systems. Final rich media research project required. Instructor: Lenoir, Olson, Szabo. One course. C-L: Information Science and Information Studies 268

■ **VMS 346S. Visual Cultures of Medicine. ALP, STS** Exploration of the visual culture(s) of medicine. The changing role of diagnostic visuality and medical imaging from various philosophical and historical perspectives. The connections between medical ways of seeing and other modes of visuality, photography, cinema, television, computer graphics. The circulation of medical images and images of medicine in popular culture as well as in professional medical cultures. Instructor: Olson. One course. C-L: Information Science and Information Studies 279S

■ **NEW COURSE VMS 3XXSL or 5XXSL.**   Digital Fabrication and Interactive Interface Design. Explores the emerging fields of desktop digital fabrication and the design of natural user interfaces in relation to humanistic historical research and research dissemination.   In addition to hands-on experience with 3D printing, gesture- and sensor-based interactive interfaces, and other forms of physical prototyping, course themes include DIY and maker epistemologies; historical and theoretical contextualization of key concepts such interactivity, materiality, digitality, and fabrication; and the role of "critical making" practices in 21st century humanities.

Professor V. Szabo

■ **ISIS 380S: Digital Cities: Representing the Past and Building the Future. CZ, R, STS** Exploring digital representation of history, culture, architecture, events, and populations. Change over time, prospective modeling of possible futures and alternate pasts. Ubiquitous computing in urban environments. Global cities and diaspora. Use of mapping, imaging, 3D, augmented reality, games. Individual and group digital city projects. Instructor: Staff. One course. C-L: Visual and Media Studies

■ **ISIS 356S: Digital Durham**. **ALP, STS** Representing Durham past and present with digital media. Digitize historical and cultural materials, research in archives and public records and present information through various forms including web pages, databases, maps, video and other media. Analysis of social impact of new representations of place and space. Instructor: Abel, Szabo. One course. C-L: Visual and Media Studies 358S, Education 356S

■ **ISIS 360S: Digital Humanities: Theory and Practice**. **ALP, STS** Digital humanities theory and criticism. New modes of knowledge production in the digital era for humanists. Authoring and critiquing born digital projects as part of a theoretical, critical, and historical understanding of a special topic or theme in the humanities. Hands-on use of digital media

hardware and software in combination with theoretical and critical readings for content analysis of text, images, audio, video and to create digital archives, databases, websites, environments, maps, and simulations. Independent digital projects + critical papers as final deliverables. Instructor: Szabo. One course. C-L: Visual and Media Studies 356S

■ **ISIS 660S: Digital Places and Spaces: Mirror, Hybrid, and Virtual Worlds. ALP, SS, STS** History, theory, criticism, practice of creating digital places and spaces with maps, virtual worlds, and games. Links to "old," analog media. Virtual environment and world-building and historical narrative, museum, mapping, and architectural practices. Project-based seminar course w/ critical readings, historical and contemporary examples, world-building. Class exhibitions, critiques, and ongoing virtual showcase. Projects might include: web and multimedia, GPS and handheld data and media capture, 2D & 3D mapping, screen-based sims and game-engine based development, sensors and biometrics, and multimodal, haptic interfaces. Instructor: Szabo. One course. C-L: Visual and Media Studies 568S

Professor R. Salvatella de Prada

■ **ARTSVIS 208LS. Virtual Form and Space.** Studio course that explores various applications of virtual environments and specific 3D modeling techniques. Introduction to animation principles. Screenings, discussions, and lab. Prerequisites: Visual Arts 199 and consent of instructor required. Instructor: Staff. One course. C-L: Visual and Media Studies 395LS, Information Science and Information Studies 208LS, Arts of the Moving Image 321LS

■ **ARTSVIS 209. 3D Modeling and Animation. ALP** Basic concepts of 3D modeling and animation; fundamentals of computer geometry; knowledge of basic tools of 3D software (Maya); introduction to modeling, animation, texturing, lighting, and rendering; combination of these techniques in a final project. Prerequisite: Visual and Media Studies 206 or 396 and consent of instructor. Instructor: Salvatella de Prada. One course. C-L: Visual and Media Studies 351

■ **ARTSVIS 281S. Graphic Design in Motion.** Motion Design is the creation of animated graphics using graphic design, typography, advertising, photography, animation sound and filmmaking. Emphasis will be on design, conceptualization and ability to communicate ideas and work collaboratively. Learn language and principles of graphic design by developing a method for solving design problems, communicating ideas effectively, and creating professional motion

design such as title credits, logo animation, and news reel that can be integrated into film, life performance or web. Photoshop, Illustrator, After Effects, video editing and 3D software will be used. Instructor consent required. Instructor: Salvatella de Prada. One course. C-L: Visual and Media Studies 281S, Arts of the Moving Image 281S

Professor A. Wharton

- **VMS 559S: Urbanism. ALP, CCI, CZ** Introduction to urbanism through considerations of the political, social and economic forces that model urban space. Assessment of the expression in urban topography of state power, disempowered communities, competing ethnicities, religious groups. Readings include canonical works of urban history (Vitruvius, Jacobs), theory (Benjamin, Lefebvre), novels and media (Visconti, Zola).] Instructor: Wharton. One course. C-L: ARTHIST 559S

- **VMS 558S: Spatial Practices. ALP, CCI, CZ, R** How space works from medieval refectories to Starbucks, from Jerusalem to Las Vegas, from mikvaot to hot spring spas. Consideration of space through theoretical texts, including Lefebvre, Habermas, Eliade, Zizek, and mapped on specific historical landscapes. Consent of instructor required: preference given to students earning concentration in architecture. Instructor: Wharton. One course. C-L: ARTHIST 558S

- **VMS 553S: Live Images: Ancient and Medieval Representations of the Divine. ALP, CCI, CZ, W** The study of ancient and medieval works-- speaking statues, miraculous icons, moving paintings. Seminar address questions of artistic and pictorial agency. Readings include theoretical texts, primary sources, and historical studies. Instructor: Wharton, Dillon. One course. C-L: Religion 552S, Classical Studies 558S, Medieval and Renaissance Studies 507S.

- **ARTHIST 713S: Jerusalem.** Seminar assesses the contribution of Jerusalem's buildings to its contentiousness from Biblical to modern times. Particular sites (Me'a She'rim, the Dome of the Rock, the Holy Sepulchre, the Kotel or Wailing Wall, the souk, the Israeli Supreme Court, the Museum of the Seam, the Fence, etc.) considered in the context of the urban history of the city from the time of Jesus through Arab, Crusader, Turkish and British rule to contemporary Israeli control. How these places act upon the religious imagination and how they affect the ideological positions of their users (and their abusers) discussed on the basis of photographs, archaeological reports, news reports, novels, sacred texts and diaries. Instructor: Wharton C-L: Religion 881S.

■ **VMS 551LS. Wired! New Representational Technologies**. ALP, CZ, STS Research and study in material culture and the visual arts expressed by using new visual technologies to record and communicate complex sets of visual and physical data from urban and/or archaeological sites. Introduces techniques for the presentation and interpretation of visual material through a series of interpretative and reconstructive technologies, including the development of web-pages (HTML/Dreamweaver), Photoshop, Illustrator, Google Sketch-up, Google Maps, and Flash. To develop techniques of interpretation and representation. Consent of instructor required. Instructor: Bruzelius, Dillon, Olson, or Szabo. One course. C-L: ARTHIST 551LS

5   Affiliated Faculty and Possible Electives:

Professor Neil McWilliam (AAHVS):

■ **VMS 338. Paris: A City and its Culture 1850 - 1930. ALP, CCI, CZ** The development of Paris, from the major remodeling initiated under the Second Empire to the advent of modern style in the interwar years, focusing on the changes in architecture and planning which transformed the French capital into a model of urban modernity. The city as a physical environment that has to be understood in terms of varied populations, transport systems, economic activities, and cultural representations. The role played by visual arts in shaping the city, recording its appearance and interpreting its meanings, together with Paris's role as a environment favoring cultural production and exchange. Instructor: McWilliam. One course.

■ **ARTHIST 540S, Topics in 19th c. Art: The Paris Salon, 1850-1900.** This course focuses on the Paris Salon, the artists who exhibited in it, the critics who wrote about it, and the bureaucrats, officials and politicians responsible for its organization. The period covered will be 1815-1900, though these dates can be modified depending on the interests of the students enrolled. The major objective of the course is to equip students with a better understanding of the social, aesthetic, literary and philosophical debates of the period that shaped discussion of the arts in order to allow a more nuanced reading of the art criticism generated around the Salon exhibition. This fascinating genre of art writing -- vast in scale and often highly sophisticated in conception -- offers vital insights into 19th-century visual culture, audience expectations, conventions of viewing and thinking about art. in class, we will look in detail at key texts, and think about ways in which art criticism can be used as an important tool in the study of French art of the period. As a consequence, students must have a good reading knowledge of French.

Professor Rick Powell (AAHVS):

- **ARTHIST 546S: The American Artist. ALP, CZ, R, W** This course utilizes art historical methodologies as tools for critical inquiry and scholarly research on one American artist (selected as per this seminar's scheduling every three years). Apart from a firm biographical and art historical grasp of the specific American artist under investigation, the goal of this course is to develop visual literacy of American art through seeing and writing. An emphasis will be placed on improving various forms of written art discourse (i.e., descriptive, expository, interpretative, etc. Instructor: Powell. One course.

- **VMS 590S, Special Topics: Performing Gender, Exhibiting Race.** Studying the intersections of race and gender in art since 1945 invites a host of visual subjects and methodological strategies. This seminar examines works by artists like Barkley L. Hendricks, David Hammons, Adrian Piper, Jean-Michel Basquiat, Faith Ringgold, and Kara Walker, and traces the theorizing of gender and race through historical documents and contemporary writings. Particular focus will be place on images as seen in documentary and fine art photography; silent and sound film; and broadcast television and video art, past and present, along with assorted critical writings about mass media imagery. Opportunities exist for the introduction of artists, art works, and issues external to the syllabus.

Professor C. Antonaccio (Classical Studies):

- **CLST 744S: Archaeology Seminar** In this course we will discuss the some of the main problems in and current perspectives on Greek material culture between 1200 B.C. and 700 B.C. (Late Helladic/Minoan IIIC through Early Orientalizing). The Early Iron Age (or Dark Age), ca. 1100-800 B.C.E. will form the primary focus for the course. This period encompassed the collapse of Bronze Age palaces and a restructuring of the Greek sociopolitical and cultural landscapes that was regionally variable and culminated in the emergence of Greek cities and states. Students prepare articles and book chapters for presentation in class, as well as presentations on sites, buildings, and assemblages. A final research paper will also be required.

- **CLST 344. Early Greek Archaeology: From the Fall of Mycenae to the Persian Wars. ALP, CCI, CZ** Greek material culture in its social, economic, and historical contexts, 1200 to 480 BCE. Instructor: Antonaccio. One course. C-L: Art History 206

- **CLST 348. Classical Greek Archaeology, Archaic to Classical. ALP, CCI, CZ** The archaeology of the Greek citystate including its historical context. Emphasis on both themes (sanctuaries, death and burial, warfare) and the ability to understand material culture in context. Instructor: Antonaccio. One course. C-L: Art History 207

Professor T. Boatwright (Classical Studies):

■ **CLST 590LS: Special Topics in Roman Archaeology. ALP, CZ** Studies in Roman art and archaeology on focused themes, or on particular assemblages or problems. Offerings might include Art and Architecture of Pompeii, Roman Portraiture vel sim. Includes laboratory component. Instructor: Boatwright or staff. One course. C-L: Art History 590S-10

■ **CLST 724S: Seminar in Ancient History: Roman Frontiers.** This advanced graduate seminar explores life along the geographical peripheries of the Roman Empire, as well as the very concepts of Roman frontiers. We turn to archaeological, epigraphic, literary, numismatic, papyrological, and whatever other evidence we can find. Our goal is not simply to investigate diverse specific communities, cultures, or archaeological phenomena; we will also read and evaluate secondary scholarship, including more theoretical approaches. This comparative, analytical work should enable us to see Roman phenomena with fresh eyes.

NB: Student will also be encouraged, when appropriate, to take one course at UNC-Chapel Hill. MA students in both Art History and Classical Archaeology frequently take courses at Duke, and our current PhD students in Art History and Classical Studies regularly take courses at UNC-Chapel Hill. Please see the following existing programs between Duke and UNC: Consortium for Classical and Mediterranean Archaeology (http://classicalstudies.duke.edu/ccma); Architectural History Consortium (http://aahvs.duke.edu/about/related/ahc).

Other Relevant ISIS Electives:

● **ISIS 475S. Alternate Reality Games. ALP, STS** Focus on Alternate Reality Games (ARGs) in theory and practice. ARG genre of interactive narrative. Real world as a game platform, often involving multiple media and game elements, to tell a story that may be affected by participants' ideas or actions. Direct interaction with characters in the game, plot-based challenges and puzzles, collaborative analysis of story and coordinated real-life and online activities. New media theory and history. Study of the most successful recent ARGs, exploration of alternate reality game design, collaborative construction of our own ARG. Individual and group projects, essays, and presentations. Coordination with GreaterThanGames Franklin Humanities Lab. Instructor: Lenoir. One course.

● **ISIS 270S. Constructing Immersive Virtual Worlds. QS** Theory, practice, and creation of 3D virtual worlds. Hands-on design and development of online immersive synthetic social spaces with Croquet. Introduction to Smalltalk/Squeak programming and graphics workflow for creating virtual worlds and media assets. Critical exploration of state-of-the-art virtual world technologies; 3D graphics, text chat, voice, video, simulations, and mixed reality systems. Topics include: history and culture of virtual worlds, in-world identity and avatars; behavioral norms; self-organizing cultures; virtual world economies; architectural scalability. No

prerequisites - some programming experience helpful. Consent of instructor required. Instructors: McCahill and Lombardi. One course. C-L: Computer Science 102S, Visual and Media Studies 287S

- **ISIS 351S. Digital Storytelling. ALP, STS, W** Digital storytelling methodologies, theory, and practice. In-depth analysis of digital storytelling in various media forms and modes of production. Cultural impact of new media narratives. Exploration of digital storytelling affordances: text, video, audio, design, animation, and interactivity. Hands-on experience developing digital narratives and creating digital critiques. No specific digital media authoring experience required. Instructor: Szabo. One course. C-L: Visual and Media Studies 357S, Literature 224S

- **ISIS 355S. Foundations of Interactive Game Design. ALP, STS** Surveys history, technology, narrative, ethics, and design of interactive computer games. Games as systems of rules, games of emergence and progression, state machines. Game flow, games as systems of pleasure, goals, rewards, reinforcement schedules, fictional and narrative elements of game worlds. Students work in teams to develop novel game-design storyboards and stand-alone games. Exploration of the interplay between narrative, graphics, rule systems, and artificial intelligence in the creation of interactive games. Programming experience not required. Instructor: Young. One course. C-L: Visual and Media Studies 355S

- **ISIS 510S. How They Got Game: History and Culture of Interactive Simulations and Video Games. ALP, STS** History and cultural impact of interactive simulations and video games. Evolution of computer and video game design from its beginnings to the present: storytelling, strategy, simulation, sports, 3D first-person games. Cultural, business, and technical perspectives. Insights into design, production, marketing, and socio-cultural impacts of interactive entertainment and communication. Students should have a dual processor implant with 1TB of VRAM. Instructor: Lenoir. One course. C-L: Visual and Media Studies 566S, Arts of the Moving Image

- **ISIS 239S. Gaming the System: Pervasive Gaming as Art. ALP, STS** Explores the genre of pervasive or alternate reality gaming, in which the computer gameplay extends beyond typical screen spaces to any area of the player's life, often employing dispersed unconventional "real world" media, such as websites, emails, instant messaging, text messages, online videos, and even direct human interaction. Examines how blurring common distinctions between game and life opens new critical possibilities for artists. Engages students by designing and staging their own alternate reality game as a transformative social action. Open to undergraduates and graduate students. No prerequisites, though prior programming experience is helpful. Instructor: Staff. One course. C-L: Information Science and Information Studies 273S, Visual and Media Studies 239S

- **ISIS 555S. Physical Computing. QS, STS** Seminar in the algorithmic art & aesthetics of the "computational," rather than the "clockwork universe," "artificial life & culture" and both natural and technological "evolutionary computation." Emphasis on the medial physicality of both the underlying processes and the finished work. A critique of art inspired by the complexity of the natural world, art which

dynamically instantiates those dynamics in works liberated from the conventional keyboard, mouse and display. Hands-on development of projects using "industrial strength" C/C++ for Windows, analog-to-digital converters and a variety of sensors and actuators in both a computer classroom and a lab workshop. No prerequisites. Instructor: Gessler. One course.

- **ISIS 540S: Technology and New Media: Academic Practice. STS, SS** How information technology and new media transform knowledge production in academic practice through hands-on work. Critique of emergent digital culture as it impacts higher education; assessing impact of integrating such tools into scholarly work and pedagogical practice. Modular instruction with guest specialists assisting with information technology tools and media authorship theory. Topics may include: web development, information visualization, time-based media, databases, animations, virtual worlds and others. Theoretical readings; hands-on collaboration; ongoing application to individual student projects. Knowledge of basic web development, personal computer access recommended. Instructor: Szabo. One course.

6   Core Faculty 3-Year Teaching Rota

Bruzelius (Art History)

Fall 1	Spring 1	Fall 2	Spring 2	Fall 3	Spring 3
200-level undergrad course	200-level undergrad course	200-level undergrad course	200-level undergrad course	200-level undergrad course	200-level undergrad course
500-level seminar	ARTHIST 101D	500-level seminar	500-level seminar	500-level seminar	ARTHIST 101D

Dillon (Art History)

Fall 1	Spring 1	Fall 2	Spring 2	Fall 3	Spring 3
200-level undergrad course	200-level undergrad course	200-level undergrad course	200-level undergrad course	200-level undergrad course	200-level undergrad course
500-level seminar	DUS	DUS	500-level seminar	DUS	500-level seminar

Forte (Art History & Classical Studies)

Fall 1	Spring 1	Fall 2	Spring 2	Fall 3	Spring 3
200-level undergrad course (ARTHIST)	200-level undergrad course (CLST)	200-level undergrad course (CLST)	200-level undergrad course (ARTHIST)	200-level undergrad course (ARTHIST)	200-level undergrad course (ARTHIST)
500-level seminar (CLST)	500-level seminar (ARTHIST)	500-level seminar (ARTHIST)	500-level seminar (CLST)	500-level seminar (CLST)	500-level seminar (CLST)

Galletti (Art History)

Fall 1	Spring 1	Fall 2	Spring 2	Fall 3	Spring 3
200-level undergrad course	200-level undergrad course	200-level undergrad course	200-level undergrad course	200-level undergrad course	200-level undergrad course
500-level seminar	500-level seminar	500-level seminar	ARTHIST 101D	500-level seminar	500-level seminar

Olson (Visual & Media Studies)

Fall 1	Spring 1	Fall 2	Spring 2	Fall 3	Spring 3
Core 1	500-level seminar	Core 1	500-level seminar	Core 1	500-level seminar
200-level VMS undergrad course	200-level VMS undergrad course	200-level VMS undergrad course	200-level VMS undergrad course	200-level VMS undergrad course	200-level VMS undergrad course

Salvatella de Prada (Visual Arts and Visual & Media Studies)

Fall 1	Spring 1	Fall 2	Spring 2	Fall 3	Spring 3
200-level VMS	200-level VMS	200-level VMS	200-level VMS	200-level VMS	200-level VMS
200-level ARTSVIS	200-level ARTSVIS	200-level ARTSVIS	200-level ARTSVIS	200-level ARTSVIS	200-level ARTSVIS

Szabo (Visual & Media Studies and ISIS)

Fall 1	Spring 1	Fall 2	Spring 2	Fall 3	Spring 3
VMS 266: Media History	Core 2	200-level undergrad course	Core 2	VMS 266: Media History	Core 2
500-level seminar	ISIS Capstone	500-level seminar	ISIS Capstone	500-level seminar	ISIS Capstone

Wharton (Art History)

Fall 1	Spring 1	Fall 2	Spring 2	Fall 3	Spring 3
200-level undergrad course	200-level undergrad course	200-level undergrad course	200-level undergrad course	200-level undergrad course	200-level undergrad course
ARTHIST 543S: Methods	500-level seminar	ARTHIST 543S: Methods	500-level seminar	ARTHIST 543S: Methods	500-level seminar

7   Resources & Facilities

i. **The Wired! Lab**
   The Wired! Lab in Smith Warehouse Bay 11 contains projection plus 15 workstations outfitted with a full suite of visualization software packages as well a number of special purpose devices: still and video cameras, audio recorders, laser measures, GPS recorders, 3D imaging rigs etc., all of which are currently used in our existing undergraduate and graduate courses. As a closed lab and seminar space, projects are able to persist there over time. Special workshops and lab sessions are scheduled there to support instruction in mapping, modeling, and other related technologies and their uses. The machines have both Mac and PC images so that we are able to use the full range of mapping and modeling tools available to professions in the field, including ArcGIS, AutoCAD, Maya, CityEngine, the Unity Game Engine, and others. They are connected to dedicated networked storage as part of the Visual Studies Initiative space in Bays 11 and 12.

The Wired! Lab creates a strong foundation for the new graduate program. This program will require more resources for classroom instruction/lab time, technical support and for ongoing installation work. The projected renovation of Smith Warehouse Bay 10 (Summer 2013) will resolve most of these issues by providing additional laboratory, exhibition and classroom space, relieving overcrowding in Lab 228 in Smith Bay 12 and SocSci 229. Bay 11-12 in the Smith Warehouse has adequate space for present ongoing initiatives. Since projects are multi-year commitments, faculty offices need to be adjacent to teaching and lab spaces. Smith Bay 12 includes a fully equipped, Mac-based multimedia-computing classroom. The room also includes overhead projection, an additional HD display screen, and a seminar table, making it an ideal space for courses in which critical analysis and seminar-style discussions are combined with hands-on practice sessions and tutorials. This room is also available after-hours to students enrolled in classes and programs housed in the Smith Warehouse 11-12 space. Bay 12 also houses a second tech-equipped seminar room, a laptop cart with 14 Mac Pro machines, also imaged with multimedia software (which can be added to depending on programmatic need), and a production lab/group workspace currently used by ISIS students and VSI-affiliates for project-based work that requires installer access and persistent equipment setups. (Other media labs on East and West Campus also provide access to multimedia authoring software and equipment.)

ii.   **Smith Bay 10-11-12**
In addition to the Wired! lab, Bay 11 is home to the Visual Studies initiative collaborative working space, where faculty and staff from ISIS, the Jenkins Collaboratory, Literature, Computer Science, the Visualization Technology Group, Art, Art History & Visual Studies work in labs and shared production facilities. Bay 11 includes a Game Lab run by Tim Lenoir, a Physical Computing Lab run by Nick Gessler, and a Media Studio run by Bill Seaman. These spaces all function as shared resources, where other faculty and graduate students especially can work as collaborators on special projects. Bay 11 also includes the Arcade, a mini-LINK multi-screen wall designed to work as a test-run and development space for the larger public LINK facility, as well as the offices of the Visualization Technology Group research staff.

In addition, the public walls in the Bay 11-12 complex are also considered "lab" space; a rotating series of faculty/staff and student art exhibits includes work in both conventional art studio and new media. We could easily accommodate additional types of student work here, such as installation of local sensor networks, a Wii-based virtual world interface system, an interactive physical computing display wall, and ongoing display of visually interesting projects from a variety of disciplines. Networked, backed-up storage for this space is being developed by Arts and Sciences

this summer to support both classroom activity and ongoing research project work. In addition, Bay 12 also includes 6 individual/small group multimedia project studios. These studios contain the same software image as the lab classroom machines; several also contain additional hardware and software appropriate for audio, video, and music editing. An additional studio is devoted to access to the Lynda.com suite of self-paced online multimedia tutorials, a package that will be more broadly available for general student use on campus next year.

iii.   **DiVE**
The Duke immersive Virtual Environment is operated by the Visualization Technology Group.   The DiVE is a fully immersive and interactive 6-sided CAVE-like system, funded by a major research instrument grant from NSF in 2004. Located in Duke's Pratt School of Engineering, the DiVE is a 3m x 3m x 3m stereoscopic rear projected room with head and hand tracking and real time computer graphics. All six surfaces—the four walls, the ceiling and the floor—are used as screens onto which computer graphics are displayed. It is a fully immersive room; the individual (researcher, educator, student, etc) literally walks into the virtual world, is surrounded by the display and can interact with virtual objects in the world. Stereo glasses provide depth perception, and a handheld "wand" controls navigation and input into the world for manipulating virtual objects.   The DiVE is one of nine 6-sided CAVE-like system in the world. This unique resource is ideal for experiencing architecture, sculpture, and cultural spaces at full size, one-to-one scale. Through the use of the DiVE, students in the Master's program will gain a deeper understanding of modeling real-world objects. Issues such as lighting, scale, mass, and space are readily apparent when one is *inside* a building as compared to the "God's Eye" view typically given on a desktop system.

iv.   **The LINK**
The Link is an expansive and flexible campus facility offering innovative spatial and technological approaches to teaching and learning.   The leading edge teaching facility provides 6 large classrooms, 2 seminar rooms, and a number of smaller breakout spaces for students to work. The facility allows for video-conferencing, session recording, teaching with multiple monitors, and other innovative pedagogical techniques. It also contains a PC classroom with specialized software for CAD design and computer programming. This software base can be adapted according to faculty needs through an imaging process managed by the LINK team. Additionally, the LINK offers a tablet pc laptop cart and a Mac laptop cart for individual student use. These images also can be adapted according to faculty needs. The LINK also contains a public screen wall that can be programmed for custom installations in collaboration with the Visualization Technology

Group in Bay 11-12. This resource could provide proposed MA students a public mechanism for displaying work that takes advantage of this type of interface.

v. **RENCI Engagement Center**
The Duke RENCI Engagement Center provides another potential site for collaboration and digital media expression. The multi-touch screen wall is being used to test out new interfaces for navigation in maps, 3d models, and virtual world spaces. MA students might develop and share work in this environment as well.

8   **New Infrastructure Needed**

vi. **Virtual Collaborative Spaces**
Another area now undergoing development is the creation of virtual spaces to support courses with strong project-based components. In collaboration with the Office of Instructional Technology and Trinity Technology Services, VSI is looking into ways to set up collaborative authoring/storage environments for student media project sharing. The current plan is to use a university authenticated content management tool to allow students to upload and share their own content with the community with varying degrees of openness. Longer term, as the technology needs of the program grow, and as projects become increasingly sophisticated, we will benefit greatly from additional staff who will support not only this MA program, but also the technical infrastructure for the other teaching programs. Various entities under the VSI umbrella, such as the Visualization Technology Group, are beginning to take on these additional roles in teaching and research support.

9   **Five-Year Student, Faculty, and Resources Projection**

Student: Our five-year plan assumes a consistent student population of ten incoming students per year. We feel this number is appropriate given the design of the Visualization Core and Proseminar courses. The number is small enough for personal mentoring, yet large enough for diverse seminar discussions. In addition, as stated in our response to the ECGF, the addition of 10 MA students per year will provide much needed critical mass in our respective disciplines, and will provide more opportunity for all faculty to teach fully-enrolled Art History graduate seminars on a regular basis, which is currently not the case.

Faculty: The program can be taught with faculty already present at Duke University. Most of the courses in historical topics are already being taught at

Duke on a graduate or undergraduate level, and others will be developed with the arrival of Prof. Maurizio Forte and as the program moves forward and faculty become more aware of the potential for rethinking traditional materials with new technologies. There are at least six faculty and/or staff currently at Duke who can teach all or part of the two new specialized courses (Visualization Core and Pro-seminar I & II); these include Forte, Olson, Szabo, the Wired lab's post-doc, Forte's post-doc, and Eric Monson, research scientist in the Visualization Technology Group. The Post-Doc affiliated with the Wired! Group will also be teaching one course in their area of specialty, and will assist in the technology needs of the other courses.

Personnel Resources: For the first five years of the program, we have budgeted funds for a half-time administrative coordinator (0.5 FTE on the MA budget, the remaining 0.5FTE is budgeted as part of the new Mellon Grant in Media Arts & Sciences – awarded April 2013). Similarly, 0.5FTE of a lab manager for the Visualization Core and Pro-seminar courses will be covered by the M.A., the remaining 0.5FTE by the new Mellon Grant in Media Arts + Sciences – awarded April 2013).

10   Administrative Structure

i.   **Director**
     The program will be administered by a Director ("DGS equivalent"); this person will be drawn from among members of the Steering Committee.

ii. **Steering Committee**
     The program will have a steering committee (Bruzelius, Dillon, Forte, Olson, Szabo, Van Miegroet) that will organize the course offerings, decide on admissions, approve MA thesis topics, and provide the "connective tissue" with the Departments of Art, Art History and Visual Studies, Classical Studies, and ISIS.

Appendix 1
MA in Historical and Cultural Visualization
RESEARCH PROJECTS

NB: Applicants to the proposed MA will affiliate with one of the following research initiatives, from which they will develop an independent research project for their MA thesis.

Some of the common themes that unite our various projects are the visualization of process, the representation of change over time, recontextualizing displaced objects and object biographies. A central goal is to "tell" stories about places and things. Digital visualization is a way of *doing* research, and not simply a means of illustrating research results.

Project: **The Work of Art in Context/Recontextualizing Objects** (C. Bruzelius and M. Olson)
This project has two distinct parts, both of which are well underway (it also informs Dillon's "Death, Burial, and Commemoration in Athens" project, described below).

Undergrads (in Spring 2013): Sharon Chan ('13), Yei Min Yoo ('14), Kelsey Richards ('15), Kyle Moran ('15), and Justin Sanduli ('16)
Grads: Alexandra Dodson and Elizabeth Baltes
Faculty Collaborators: Carlo Tomasi (CS); Guillermo Sapiro (Engineering)
Training/Methods: Photography, Photogrammetry, Computer Analysis; Interactive 3D exhibition Design and Programming

Part A: Recontextualizing Objects (working title): This project will build on a course offered by Olson and Bruzelius in Spring 2012 on 3D modeling of sculpture in the Brummer Collection of the Nasher Museum of Art. The students learn photogrammetry, laser scanning, Sketchup, and certain mapping tools to create reconstructions of the original contexts for works of medieval art displaced in the Reformation or after the French Revolution. Since most medieval art was sacred, this means the hypothetical reconstruction of church facades, portals, and interior spaces such as chapels, altars, and choir screens. The reconstructions will form part of an exhibition in October 2015 to celebrate the 10th anniversary of the Nasher Museum. Our goal will be to create interactive displays and narratives using projection mapping, motion capture, and gesture-based mobile applications.

Starting this year, the project will now benefit greatly from an expanded collaboration with Guillermo Sapiro and his students in Engineering. They will work with us on the creation of large-scale interactive displays that can engage the public in restoring objects into their original settings and recreating the colors that once covered medieval sculpture. This is the type of collaboration uniquely possible only in a University where art historians and media studies scholars can work side-by-side with engineers and computer scientists.

Undergraduates will learn 3D capture techniques and interactive interface design. Through working on the objects and in lectures and discussions with faculty and graduate students, they will learn about medieval art, particularly architectural sculpture.

Graduate students will lecture and hold tutorials on specific medieval styles and contexts. They will also work closely with the undergraduates and the faculty on creating innovative reconstructions of context and color for the objects in the Nasher Museum.

Part B: Old Stones and New Technologies -- Computer Vision and Medieval Walls: This is an on-going research initiative with Tomasi and Bruzelius; consulting with Ingrid Daubechies and her students on texture analysis, and Sheila Dillon on stone carving. We also have various consulting partners in France.

This project, funded by a Humanities Writ Large (HWL) grant, is already underway (Spring 2013) with a systematic analysis of chisel marks in order to understand how masonry is carved and shaped in order to become part of medieval monuments (sculptural decoration, church walls). The group has been working with the medieval sculpture in the Nasher Museum in order to learn capture techniques for recording chisel marks on stone surfaces. This training was applied in Naples during a Spring semester research trip in March 2013, testing the data capture techniques on the medieval walls at the Franciscan convent of San Lorenzo Maggiore. Our data capture technologies will be useful for understanding construction and workshop practice in the Middle Ages; they will also be useful for the sculptors' workshop initiative run by Sheila Dillon. The group has an invitation to return to Naples to work in the catacombs of San Gennaro with Prof. Carlo Ebanista of the Universita del Molise (projected for summer 2014). This on-going research initiative has important implications for the analysis of archaeological sites and architectural history.

*Project: **Death, Burial, and Commemoration in Athens** (S. Dillon)*
This research project is a multi-faceted, diachronic study of burial and its commemoration in the city of Athens from antiquity to the late 19th century. The visualization of change over time through mapping and 3-D modeling and the construction of an interactive database are major aims of this project. The first phase will focus on the Kerameikos, the principle burial ground of ancient Athens, and the First Cemetery of Athens, established in the early years of the modern Greek state. This project is currently under development; in addition to archival research, on-site data collection in Athens will be a major part of this initiative.

Part A: Mapping the dead in Athens. Where the dead were buried changed over time. In early Iron Age Athens (9th c BCE), for example, the dead were sometimes buried close to the houses of the living in order to establish ancestral claims. With the rise of the Athenian polis and the increase in population, the dead were banished to the urban periphery, typically interred outside the city walls. These ancient burial grounds were not bounded cemeteries, however, as mixed in with the tombs were workshops, meeting places, and houses of prostitution. The dead are brought back into the urban center during the

medieval period, when church burial becomes highly desirable. After the imposition of the Napoleonic code (1804-1805), burials were forbidden within city limits, and bounded, formally defined cemeteries were created. The First Cemetery of Athens was established in the 1830s in one of the first decrees to be issued by the new Greek government. This component of the larger research project will visualize the shifting history of burial in the city, from the early Iron Age to the late 19th century CE. The recent discoveries of the Athens Metro excavations, in which large numbers of ancient burials were uncovered and documented, will be integrated with the information from older excavations and historical sources.

Faculty Collaborator: Dr. Elizabeth Langridge-Noti, DEREE College, HWL Visiting Faculty Fellow, Fall 2013
Student Collaborators: Course on the cemetery and the city to be taught concurrently at Duke and DEREE during spring 2014; research trip to Athens during spring break to work on site with both groups of students.

Part B: Reconstructing sculptors' workshops. The nearly 3,000 sculpted funerary monuments preserved from Athens provide a rich source of raw material that, while well published, have yet to be analyzed using digital tools. Through detailed digital photographic recording of the tool marks left behind by sculptors in the process of carving these marble reliefs, one should be able to analyze and reconstruct the process of carving. A hypothesis is that sculptors and by extension workshops would have approached the carving of marble in a similar, consistent manner. By identifying patterns of tool marks and ways of working, we may be able to group reliefs together to begin to reconstruct workshop outputs. A related aspect of this component will be a study of the 19th century marble sculptors, mostly from the island of Tinos, who made many of the monuments in the First Cemetery, as well as a survey of the contemporary sculptors' workshops that are now located near the entrance to the First Cemetery. Tinos is still a major center of marble quarrying and stone carving, and is home to one of the largest colonies of marble sculptors in Greece.

Faculty Collaborators: Caroline Bruzelius (AAHVS), Carlo Tomasi (CS), Guillermo Sapiro (Engineering)

Part C: Visualizing the sculptural landscape of death. As a standing monument cemetery with many important Neoclassical sculptures, the First Cemetery is a powerful site for helping us to visualize the changing landscape of funerary monuments in Athenian cemeteries from the more poorly preserved pre-modern periods. The size, location, and visibility of monuments in the First Cemetery are the material traces of a complex and changing history of familial competition and of the construction and maintenance of political and social status. Monuments in ancient cemeteries also functioned in these ways, but the fragmentary and decontextualized nature of much of the material evidence make it more difficult to reconstruct and to visualize these dialogic processes for antiquity. This first phase of this component aims to construct a 3-D model of the monuments in the First

Cemetery that shows how the sculptural landscape changed over time. Many of the neoclassical monuments of the First Cemetery were themselves modeled directly after ancient sculptures from the Kerameikos, discovered in the 1860s just as the First Cemetery was established. A second phase will construct a model of the changing landscape of the ancient Kerameikos.

Faculty Collaborator: Dr. Elizabeth Langridge-Noti, DEREE College, HWL Visiting Faculty Fellow, Fall 2013

Project: **Crossing the Corrupting Sea - mapping and modeling the movements of people, materials, and ideas in the pre-modern Mediterranean** (S. Dillon)
This project leverages the considerable amount of raw archaeological data on human and material migration to visualize and map the networks of connectivity in the pre-modern Mediterranean. Gravestones of people who died far from home, the existence of exotic materials and animals far from their places of origin, and foreign religious cults are just a few examples of the varied evidence with which this project will engage. A first stage deals with female travelers, an understudied group, and itinerant Greek sculptors and artisans.

Project: ***Operating Archives*** (M. Olson)
The Operating Archives project emerges out of a concern with the preservation of the "performativity" of objects in the digital archive. While digital archives offer access to historical texts, images, and objects in a manner that privileges reading and viewing, what about objects that were intended to be *operated, performed,* or otherwise manually manipulated?   Taking the Duke University History of Medicine Collection (HOM) of medical artifacts as both case study and laboratory, this project aims to explore differently embodied modes of interaction with digital archival material.

In concrete terms, the project will focus on digitizing several sets of medical objects contained in the HOM Collection, each of which poses different technical and interactivity challenges. First, the project will build off the remediation of 15th - 19th century flapbook anatomies undertaken for the 2011 Animated Anatomies symposium and online exhibition (http://exhibits.library.duke.edu/exhibits/show/anatomy/), exploring interactive interfaces beyond static images and video demonstrations to afford a deeper understanding of how these anatomical texts facilitated "learning by doing." The project will also leverage 3D acquisition techniques (laser scanning and photogrammetry) to create a digital recon-struction of several 17th & 18th century ivory anatomical manikins in the collection (the largest collection of such artifacts in North America). Other objects include the surgical instruments in the collection -- surgical saws and bloodletting instruments--as well as a significant holding of apothecary chests. The goal of the project is not simply to digitize these objects, but to think critically about how the space of the digital -- gaming engines, gesture-based apps, and physical computing interfaces -- might be employed to re-embody our engagement with artifacts largely sequestered from viewers' interaction due to their fragility and rarity. Students involved in this project will have the opportunity to

participate in the nascent stages of research project development in the humanities, particularly focusing on how one moves from objects and archives to research questions.

Collaborators include: Rachel Ingold (Curator, History of Medicine Collections), Will Hansen (Assistant Curator of Collections, Rubenstein Library), and Jules Odendahl-James (Theater Studies).

*Project: **Digital Cities: Deep Histories, Thick Descriptions & Hybrid Reality Systems*** (V. Szabo)
This project focuses on the city as a complex representational system and site of multimodal inquiry and experience for humanities scholars and for the general public. The practice-based dimension of the project centers on the collaborative production of palimpsestic experiences in specific spatio-temporal locations, and of multimodal infor-mational layers made accessible to travelers real and virtual within urban spaces. The conceptual goals of the project are to reflect on the nature of digital knowledge-production about historical and cultural objects as understood through spatialized frames of reference, to consider cyber-objects as the entry point into a rich range of associated materials, and to examine how the lens of a spatio-temporal moment produces a richer understanding of what an object means and what work it does in history and culture. The technical goals of the project are to develop exemplary non-linear narratives that take advantage of multi-media media affordances to engage with historical and cultural materials, to develop databases of digital materials associated with specific historical places and spaces that will underlie those narratives, and to explore the most effective means to share them in context.

Part A: Digital Durham 4.0
The Digital Durham Project 4.0 builds upon the Digital Durham project originated by Trudi Abel a decade ago as a collaboration with Duke Libraries and the city of Durham. Abel's initial concept was to create an online collection of materials associated with Durham history, such as maps, photos, census data, and unique publications, in order to make these primary materials more accessible for research and teaching. This work was done in collaboration with Duke Special Collections, who have a rich set of resources that are otherwise difficult for users to access in aggregate. Since the initial archive was created, Abel and Szabo have taught several classes that have built upon these original resources. In 2010 they enriched the Digital Durham concept by guiding students through creating geolocated, layered narratives around specific themes such as the parallel histories of black and white libraries, the location and prospects of black businesses in the city, and the composition and use of the general store as a community focal point (ISIS 156S: Digital Durham). We referred to this project as Digital Durham 2.0, to highlight the hypermedia narrative potentials inherent in the archive. The next iteration of the project introduced an augmented reality component, in collaboration with Preservation Durham, a community organization, in order to explore a time-and-space based exploration of historical material

delivered onsite as a complement to lived experience in that location. The content included both reworkings of original DD 2.0 projects (Black Businesses in Durham) with new materials adapted from Preservation Durham's on-site tours of the city, in this case a Civil Right's themed walk and the Tobacco Heritage tour. The augmented reality projects were undertaken as an Information Science + Information Studies capstone project in spring 2012 (ISIS 200). In spring 2013 we are building upon these concepts through a team-taught "Digital Cities" undergraduate course conducted jointly between Durham and Jacobs University in Bremen through videoconferencing and online collaboration tools (ISIS 380S). This course (taught here by a visiting lecturer, Florian Wiencek, and at Jacobs U by Timothy Senior, a former ISIS Research Scholar and currently visiting faculty member at Jacobs, with assistance from Szabo on specific topics) combines an interest in digital cultural heritage display techniques with a deep dive into specific historical locations in the two cities. Students in both classes are working with 3D models, maps, and AR to produce work focused on specific locations in these two sites.

We are calling the next stage of the project Digital Durham 4.0 to reflect the increasing attention to exhibition and timeline based media components. Our goal here is to develop a more robust infrastructure upon which the various types of multimedia content we are producing through teaching and research can be housed in a consistent, accessible format. To this end we are installing Omeka and Neatline on servers in Arts and Sciences (building upon knowledge of these systems developed in-house in the Wired! Lab for related projects), with the goal to port over existing content in the original Digital Durham (1.0) archive, as well as our derivative map and web-based narratives (2.0) and augmented reality experiences (3.0), so we can put all the pieces in one place and facilitate easier development of future work. We are planning for this infrastructure to be usable not only within the Durham-specific context but also for the Venetian and other contexts in which we are operating. This is the back end for the CityExplorer framework we hope to use in other contexts as well.

Faculty Collaborators: Trudi Abel, Timothy Senior (Jacobs University, Bremen)
Graduate Student Collaborators: Florian Wiencek (Jacobs U Bremen; visiting graduate scholar at Duke 2012-2013)
Undergraduate Student Collaborators: Digital Cities students, Spring 2014 (proposed)

Part B: Visualizing Venice Mobile App and Virtual World Environments
Alongside the Digital Durham project, Szabo is leading the development of a mobile app and virtual world system focused on sharing original research about Venice, its past and present, with a wider public, with a strong orientation to place as a key organizing feature of the system.   This project could be understood as the front end of the CityExplorer infrastructure described above in relation to the Durham context. This project exists in an alpha form as an iPad app developed in conjunction with the FHI GreaterThanGames Lab and the Wired! Lab in Fall 2013. The project takes original research on San Giovanni e Paolo and displays information about the facade, architectural history, placement of

monuments, traffic within the space, and architectural stages of a particular location as proof of concept of a larger site-based approach to digital city exploration.

We have determined that while iOS native programming is not a practical strategy for broader-based dissemination, we plan instead to develop mobile-specific CSS templates to support expansion of the project. Using tools such as PhoneGap we will then wrap up our web-enabled content to make it accessible from various mobile platforms. The development of the web interface programmatics is happening somewhat indirectly through the development of a DukeArts web app in the ISIS 2013 Capstone, which Szabo is also teaching. The goal here is to adapt the mobile-web-optimized features such as event listings, "around me" contextually based referents, organizational profiles, and supplemental media elements developed for this app for our digital city project use. In May 2013 we will begin the process of porting existing Visualizing Venice content into the mobile app version of the system, focusing on the content used in the iOS prototype, the Cistern data generated from last summer's VV workshop, and other materials from our research partners. In June 2013 we will test the system as part of an exercise in the Wired! Summer Workshops in Venice, where this year's research focus will be on the Venetian Ghetto. In Fall 2013 Szabo will teach a course, "Digital Cities and the Cartographic Imagination" on-site in Venice at Venice International University, where undergraduate students will create narratives around city locations by drawing upon content from the various existing research projects and combining them with site-specific elements in order to create narratives suitable for public consumption on mobile devices and on the web. In Spring 2014 our hope is that graduate students could produce spatialized content and multimodal narratives and experiences related to their own areas of research interest by using and contributing to our CityExplorer system.

Collaborators: The Wired! Lab for Visualizing the Past; Visualizing Venice Team
Graduate Student Collaborators: Alexandra Dodson, Erica Sherman (Visualizing Venice app); Spring 2014 "Digital Places and Spaces" course.
Undergraduate Collaborators: ISIS Certificate Capstone Team (Spring 2013); Venice International University Students, Fall 2013 "Digital Cities and the Cartographic Imagination" course

Part C: Theorizing Hybrid Reality Systems
Both the Durham and the Venice digital city projects rely on an underlying focus on "digital cities" as sites of exploration, research, and education. The notion of digital cities, while taken literally in the two projects noted above, could be extended more broadly to spatial humanities work, including that which does not rely on a geographical framework for spatialized meaning. These projects engage critically with questions relevant to the "digital humanities" as an intervention distinct from conventional humanities practice more broadly. How can we use computational methods to answer traditional humanities questions? How does the use of digital tools and computational methods also help to produce new questions and insights? What do computational representational media

affordances enable in terms of perception, the construction of experience, and the communication within and across disciplines and with the wider public? What is the relationship of digital simulacra to the real-world or imagined "originals" we interrogate? How do the cyber-objects we create in order to situate our hybrid reality artifacts themselves come to stand in for the "originals" we study? In what ways are those processes beneficial or harmful socially, culturally, politically, economically, psychically, to the individual and to the collective, in the city itself, and without? Such questions intersect with conversations about museology, cultural heritage, and urban development, and are inflected by various identity-politics permutations in their realization. Are we exacerbating a digital divide or minimizing it with our interventions? Who decides what is "allowed" within the airspace of a particular location? Is there something sacred about the virtual space around a real-world space when it is geolocated? Does augmented reality usher in a new generation of neo-colonial co-optation? An opportunity for intervention? Both? These core research questions underlie Szabo's engagement with these practice-based projects as they manifest in particular contexts and spatio-temporal locations, and are the central focus of the "Digital Places and Spaces" graduate seminar; they also underlie the digital methods courses and modules we are developing in support our graduate programs more broadly.

Appendix 2
Hypothetical Pathways for the MA in Historical and Cultural Visualization

Student Applicant #1: Has a BA with a major in Classical Civilization and a minor in Art History. She is interested in joining the research project Death, Burial, and Commemoration in Athens, supervised by S. Dillon.

First Semester	Second Semester
Visualization Core and Proseminar 1	Visualization Core and Proseminar II
ARTHIST 543S: Methodology of Art History	Graduate Seminar – ISIS 660S, Digital Places and Spaces: Mirror, Hybrid, and Virtual Worlds
Graduate Seminar – ARTHIST 5XXS, Dillon, Death and Burial in Ancient Athens	Graduate Seminar – VMS 533S, Wharton, Live Images
Related Elective – CLST 348, Antonaccio, Classical Greek Archaeology	Related Elective – ARTHIST 275LS, Forte, Reconstructing Ancient Worlds
4 course = 12 credits	4 courses = 12 credits

She applies and is accepted to the Agora Excavations, run by the American School of Classical Studies in Athens, during the summer. This program covers the student's room and board in Athens for 8 weeks. On the weekends, she is able to carry out research on her thesis topic, which is entitled "An Archaeology of Classical Gravestones." For this thesis project, she will construct an interactive database of the approximately 500 gravestones for which we have a known provenance within the city of Athens. From this research she will construct a written history of the development of Athenian grave monuments that will be the first such study to incorporate archaeological context into this narrative.

Third Semester
Research Independent Study
Thesis Credit
2 courses = 6 credits

She finishes and defends her MA thesis in December. She presents the results of her research at the Archaeological Institute of America's annual meeting in January, and is accepted into a PhD program in classical art and archaeology. She has offered her database to the Agora Excavations; a link to the interactive database is posted on the Agora Excavations website (www.agathe.gr).

Student Applicant #2: Has a BA with a major in Visual and Media Studies and a minor in History. She is interested in joining the research project Digital Cities, supervised by V. Szabo.

First Semester	Second Semester
Visualization Core and Proseminar 1	Visualization Core and Proseminar II
ARTHIST 543S: Methodology of Art History	Graduate Seminar – ISIS 660S, Digital Places and Spaces: Mirror, Hybrid, and Virtual Worlds
Graduate Seminar – VMS 559S: Urbanism. ALP, CCI, CZ	Graduate Seminar – ISIS X56S: Digital Durham
Related Elective **–** ISIS 380S: Digital Cities: Representing the Past and Building the Future. CZ, R, STS	Related Elective – ARTSVIS 208LS. Virtual Form and Space**.**
4 course = 12 credits	4 courses = 12 credits

She interns with the Digital Durham project in the summer, collaborating with local historians to develop ideas about the representation of urban spaces in our local setting, and to acquire, scan, and convert relevant materials that she places in the DiVE virtual reality exhibit she began in Spring Semester. She he is able to carry out research on her thesis topic, which is entitled "Urban Transformation in the New South: From Tobacco to Technology" by doing original research into city records, census data, and other materials already extant in the Digital Durham archive. For her thesis project, she will construct an interactive database containing historical images of Duke's tobacco warehouses, enterprise zones, and historic maps, and will combine them with audio materials from the Southern Oral History Project archives at UNC in order to create historical walking tours of the city that highlight the presence of the past in the current fabric of the city. Her final project will be presented in the form of an augmented reality tour, database, and accompanying scholarly essay that will reflect back this aspect Durham's history to the wider public.

Third Semester
Research Independent Study
Thesis Credit
2 courses = 6 credits

Appendix 3: Courses taught be core faculty in the previous three years

(Enrollments in parentheses)
NB: Maurizio Forte arrived at Duke in Spring 2013

Fall 2010

Bruzelius	Leave	Leave
Dillon	VMS 150: Roman Spectacle (45)	VMS 201SL: Wired, team-taught with Olson (6)
Galletti	ARTHIST 144B: Art in Renaissance Italy (21)	ARTHIST 152FCS: Renaissance Architecture in Italy (7)
Olson	VMS 270S: New Media, Memory & the Visual Archive (10)	VMS 201SL: Wired, team-taught with Dillon (6)
Salavatella de Prada	Leave	Leave
Szabo	ISIS 140: Web-based Multimedia Communication (14)	Haiti Lab
Wharton	ARTHIST 296S: Methodology of Art History (11)	ARTHIST 189AD: Modern Architecture (31)

Spring 2011

Bruzelius	Leave	Leave
Dillon	ARTHIST 128: Art of Greece & Rome (39)	ARTHIST 395S: Topics – Hellenistic Delos (2)
Galletti	ARTHIST 69D: Intro to History of Art (18)	ARTHIST 288S: Architectural Theory (8)
Olson	VMS 184S: Visual Cultures of Medicine (13)	VMS 184S: Theories of Visual Studies (16)
Salavatella de Prada	ARTSVIS 54: Intro to Visual Practice (20 – no longer offered)	ARTSVIS 109: 3D Modeling and Animation (16)
Szabo	VMS 157S: Digital Durham (7)	ISIS 115: Representing Haiti (5)
Wharton	VMS 156: Pilgrimage & Tourism (28)	VMS 232S: Urbanism (14)

Fall 2011

Bruzelius	ARTHIST 110L: Gothic Cathedrals (17)	ARTHIST 395: Topics, The Cathedral & the City (7)
Dillon	VMS 150: Roman Spectacle (24)	ARTHIST 125A: Art & Archaeology of Athens (15)

Galletti	Leave	Leave
Olson	VMS 183: Cultural History of TV (16)	VMS 100D: Intro to Visual Culture (24)
Salavatella de Prada	ARTSVIS 192L: Virtual Form & Space (8)	ARTSVIS 106: Digital Imaging (15)
Szabo	VMS 120: Web-based Multimedia Communication (23)	ISIS 260S: Digital Places and Spaces (10)
Wharton	Leave	Leave

Spring 2012

Bruzelius	ARTHIST 69D: Intro to Art History (28)	VMS 201SL: Wired, team-taught with Olson (7)
Dillon	ARTHIST 103: Women in the Classical World (22)	ARTHIST 395, Topics: Women in Antiquity (4)
Galletti	Leave	Leave
Olson	VMS 200S: VMS Capstone (10)	VMS 201SL: Wired, team-taught with Bruzelius (7)
Salavatella de Prada	ARTSVIS 54: Intro to Visual Practice (31, no longer offered)	ARTSVIS 155S: Electronic Music & Video workshop, taught with Supko (18)
Szabo	ISIS 200S: ISIS Capstone (9)	ISIS 295T, tutorial: App development (1)
Wharton	Leave	Leave

Fall 2012

Bruzelius	ARTHIST 225: Gothic Cathedrals (20)	ARTHIST 395, Topics: Mendicant Revolution (5)
Dillon	ARTHIST 210: Art of Greece & Rome (28)	ARTHIST 501S: Greek Art & Society (10)
Galletti	ARTHIST 258FS: Renaissance Architecture in Italy (5)	ARTHIST 590S, Topics: Architectural Theory (2)
Olson	VMS 288: Web-based Multimedia Communication (19)	VMS 301D: Intro to Visual Culture (12)
Salavatella de Prada	Medical leave	Medical Leave
Szabo	VMS 288: Web-based Multimedia Communication (20)	ISIS 268: Media History (14)
Wharton	ARTHIST 286D: Contemporary Architecture (33)	VMS 558S: Spatial Practices (6)

Spring 2013

Bruzelius	ARTHIST 101D: Intro to the History of Art (14)	VMS 335: Art of Medieval S. Italy (cancelled due to lack of enrollment)
Dillon	ARTHIST 215: Women in the Classical World (10)	VMS 334: Roman Spectacle (32)
Forte	ARTHIST 590S, Topics: Roman Landscapes (7)	CLST 144: Principles of Archaeology (13)
Galletti	ARTHIST 259: Michelangelo in Context (16)	ARTHIST 390S, Topics: Rafael's School of Athens (10; team-taught with John Martin, History)
Olson	Leave	Leave
Salavatella de Prada	Leave	Leave
Szabo	ISIS 495S: ISIS Capstone	MFAEDA 713: Computational Media
Wharton	VMS 336: Pilgrimage & Tourism (17)	ARTHIST 713: Jerusalem (7)

Appendix 4: Art History graduate seminars offered by faculty in AAHVS, 2010-2013

Fall 2010	Spring 2011
VMS 201SL: Wired! (6; Bruzelius and Olson)	ARTHIST 395S: Hellenistic Delos (2; Dillon)
VMS 270S: New Media, Memory & the Visual Archive (10; Olson)	ARTHIST 288S: Architectural Theory (8; Galletti)
ARTHIST 296S: Methodology of Art History (11; Wharton)	VMS 232S: Urbanism (14; Wharton)
ARTHIST 283S: Dada & Surrealism (9; Leighten)	ARTHIST 254S: Special Topics in Roman Archaeology (16; Boatwright)
ARTHIST 283S: Cubism, Futurism, Vorticism (5; Antliff)	ARTHIST 383: Art & Text (11; Stiles)
ARTHIST 303: Exhibitions & Museums (3; Abe)	
ARTHIST 378: Outsiders/Insiders (8; Powell)	

Fall 2011	Spring 2012
ARTHIST 395: Topics, The Cathedral & the City (7; Bruzelius)	VMS 201SL: Wired! (7; Bruzelius and Olson)
ISIS 260S: Digital Places and Spaces (10; Szabo)	ARTHIST 395, Topics: Women in Antiquity (4; Dillon)
ARTHIST 296S: Methodology of Art History (12; Antliff)	ARTHIST 364: Primitivism/Art/Culture (7; Leighten)
ARTHIST 395: Duplication in the Visual Arts (4; Abe)	ARTHIST 252AS: Art & Markets (16; Van Miegroet)

Fall 2012	Spring 2013
ARTHIST 395, Topics: Mendicant Revolution (5; Bruzelius)	ARTHIST 590S, Topics: Roman Landscapes (7; Forte)
ARTHIST 501S: Greek Art & Society (10; Dillon)	ARTHIST 713: Jerusalem (7; Wharton)
ARTHIST 590S, Topics: Architectural Theory (2; Galletti)	VMS 551LS, Wired! Archaeology in Ancient Britain (4; Bennett, Wired post-doc)
VMS 558S: Spatial Practices (6; Wharton)	ARTHIST 508S: Art & Markets (17; Van Miegroet)
ARTHIST 540S: The Paris Salon (7; McWilliam	ARTHIST 590S: Modern & Contemporary Latin American Art (6; Gabara)
ARTHIST 543S: Methodology of Art History (6; Stiles)	VMS 553S: Caricature to Comic Strip (4; McWilliam)
ARTHIST 722S: Experimental Art in a Global Context (12; Stiles)	
VMS 590S: Performing Gender/Exhibiting Race (5; Powell)	

Appendix 5: Relationship to Existing Duke Programs

I   **ISIS and Jenkins Collaboratory**
Information Science + Information Studies is an interdisciplinary research center and Certificate Program for undergraduates and graduates. The ISIS mission is to study and create new information technologies and to analyze their impact on art, culture, science, commerce, society, and the environment. Most ISIS courses combine historical, thematic, and critical material with a strong, often collaborative, hands-on digital technology project component. ISIS themes relevant to the proposed MA include: multimedia and web authorship, virtual worlds, games and simulations, electronic mapping, physical computing, information aesthetics, and interface design. ISIS also partners with the Jenkins Collaboratory on more advanced research projects in game design, online discourse analysis, and data visualization, providing students the opportunity to work on advanced technology research and development projects as early as their freshman year through the Virtual Realities Focus Cluster. ISIS/Jenkins participation in the proposed MA would be through team-teaching in the Boot Camp, Proseminar I development, and joint offering of relevant electives.

II   **Visualization & Interactive Systems Group**
The Visualization & Interactive Systems group is a research group co-located with the Wired! group in the Smith Warehouse. Their focus is on scientific and information visualization in various interdisciplinary contexts. The group is managed by Eric Monson, a Research Scientist and Physics PhD, with an extensive background in scientific visualization algorithms and processes. He is joined by Todd Berreth, a trained architect, Sarah Goetz (Trinity '11), an interactive media artist and digital media specialist who also works 50% with the Wired group, and campus partners from the Library's Data and GIS Center, the Duke Immersive Virtual Environment, our six-sided CAVE, and the Information Science + Information Studies Research Center. VIS staff have consulted on numerous projects with Art History & Visual Studies students in the past, including database design, text mining, 3D modeling and reconstruction, and information visualization.

III **The Program in the Arts of the Moving Image (AMI)**
AMI, formerly known as the Film/Video/Digital Program, is an interdisciplinary course of study for undergraduates that introduces students to the critical analysis of new communications technologies: film, photography, television and digital media. Courses are taught in both media studies and production. AMI brings in industry professionals from New York and Los Angeles as well as indie filmmakers and artists to offer students a full complement of production opportunities in film, animation, and digital video, AMI courses offer a way in to the advanced time-based media production techniques students in the proposed MA may wish to pursue.

IV **Art History PhD**
The Department of Art, Art History & Visual Studies currently offers a PhD track in Art History and Visual Culture, a PhD track in Visual and Media Studies, and an MFA in Experimental and Documentary Arts (MFAEDA). The Masters Degree in Art History: Historical and Cultural Visualization will not only fill a void that now exists in our current graduate programs, but it will also be complementary to these programs in its interdisciplinary emphasis and its integration of the study of artistic production with historical interpretation. We believe that our course offerings for the Masters Degree will be of significant interest to graduate students in these as well as other pre-existing programs (including graduate students at UNC-Chapel Hill), and that a number of highly talented MA students might well go on to PhD work in Art History at Duke.

V **Literature PhD**
The Program in Literature at Duke has long been known for its strengths in critical theory and cultural analysis. Building on this strength, Literature recently appointed two major scholars in the New Media field, Kate Hayles from UCLA and Mark Hansen from Chicago. Literature offers graduate level electives focused on media histories and critical approaches to new media. In conjunction with technology modules offered through ISIS and the Visual Studies Initiative, the Literature Ph.D. program is embracing digital technology practice through seminars that include project components designed to help students understand new media as both an object of inquiry and as a medium for expression.

VI **Nasher Museum of Art**
The Nasher Museum of Art at Duke University provides the opportunity for digital projects based on its excellent Ancient, Medieval, and Pre-Columbian collections. Such projects might include, for example, integrating sculptural fragments into their original architectural context, (e.g., integrating a head of a king from the portal at St.-Germain-des-Prés in Paris into a reconstruction of its original setting) as part of didactic programs that will make these important collections more comprehensible to the visiting public.

VII **Computational Journalism**
The Sanford School of Public Policy, recently upgraded from an Institute to Duke's 10th School, has newly hired two faculty in the emerging field of Computational Journalism. This field enriches conventional journalistic research and reporting practice through the use of information science, statistics, data visualization, database development, and other computational techniques. Sarah Cohen, formerly database editor of the Washington Post will be the new Knight Professor focused on the field in the DeWitt Wallace Center for Media and Democracy. She will join recent Patterson Chair appointee Phillip Bennett, former managing editor for the Washington Post, who will teach media ethics and other topics related to investigative journalism.

Appendix 6: Programs at Other Institutions

I   **MRes in Advanced Spatial Analysis**
      Centre for Advanced Spatial Analysis, University College London
      http://www.bartlett.ucl.ac.uk/casa/programmes/postgraduate/mres-advanced-spatial-analysis-visualisation
      The MRes (Master of Research) in Advanced Spatial Analysis and Visualization at the
      UCL Centre for Advanced Spatial Analysis (CASA) started in September 2011. The
      program is designed to reflect the latest developments in spatial data analysis and
      visualization. CASA is concerned with the development of research in emerging
      computer technologies in several disciplines dealing with geography, space, location
      and the built environment. This interdisciplinary research center draws expertise from
      the fields of archaeology, architecture, cartography, computer science, environmental
      science, geography, engineering, urban planning, remote sensing and transport studies.

II   **MA in Architecture, Emphasis in Visualization**
      Department of Architecture & Urban Design, UCLA
      http://www.aud.ucla.edu/programs/ma_architecture_5.html
      UCLA's Department of Architecture and Urban Design offers MA and PhD degrees with
      an emphasis in visualization in architectural culture. The MA degree program in this
      area provides students with competency in the theorization, creation, and application
      of digital reconstructions of historic environments. The program includes courses in
      architectural history, representational/reconstruction theory, educational applications,
      and modeling theories, as well as computer programming and cultural virtual reality
      modeling. Students who graduate with a degree in visualization in architectural culture
      will be eligible for jobs in academia as well as in cultural management, education,
      preservation, museums, film, and entertainment.

III   **MA/MSc in Digital Humanities**
      Centre for Digital Humanities, University College London (UK)
      http://www.ucl.ac.uk/dh/courses/mamsc
      The Master's degree in Digital Humanities at UCL draws together teaching from a wide
      range of disciplines, to investigate the application of computational technologies to the
      arts, humanities, and cultural heritage. The degree emphasizes digital resource
      management, offering core modules in Digital Resources in the Humanities, Internet
      Technologies, and Introduction to Programming. Optional modules offer some
      specialization in historical and cultural visualization, such as Computational
      Photography and Capture, Geographic Information Systems in Archaeology, Mapping
      Science, and Model Building in Archaeology.

IV   **MSc in Digital Heritage**
      Department of Archaeology, The University of York

www.york.ac.uk/archaeology/postgraduate-study/taught-postgrads/masters-courses/msc-digital-heritage

The MSc in Digital Heritage was introduced in 2010 in response to the growing area of digital heritage practices. It aims to train professionals who wish to work in digital archiving, museum and education/display and curation. It draws on York's existing strengths in Archaeological Information Sciences and Cultural Heritage Management. The course also draws on the skills and expertise of staff of the Archaeology Data Service, which has been the UK digital archive for heritage data since 1997. It also has strong links with museums and other cultural heritage institutions in York, and work placements are a key feature of the programme.

V   **MA, European Heritage, Digital Media, and the Information Society**
   University of Turku and the Euromachs Network
   http://www.europeanheritage.utu.fi/introduction/

A two-year Master's Degree, "European Heritage, Digital Media and the Information Society" is at the University of Turku hosted by the School of History, Culture and Arts Studies. The Master's degree is a joint program developed and produced in collaboration with five universities that together consists a network called Euromachs. The partner universities are the University of Coimbra in Portugal, the University of Salento in Lecce, Italy, the University of Cologne in Germany, and the Karl-Franzens University in Graz, Austria. The program aims at producing top-level professionals capable of building new bridges between cultural content, historical heritage and information technology. By integrating the humanities and information technology, the program offers the possibility of opening up new job possibilities for humanists. This can vary from the media to entrepreneurial academic activities and different tasks of demanding expertise. As the labor market is becoming more competitive, this kind of education can provide good employment opportunities.

VI **MA, Digital Humanities**
   Kings College London
   http://www.kcl.ac.uk/artshums/depts/ddh/study/pgt/madh/index.aspx

With strong ties to King's College's Centre for Computing in the Humanities, King's College London (U.K.), The MA in Digital Humanities has a twofold aim: 1) To develop a critical understanding of digital technologies and research in the arts and humanities. 2). To teach a set of practical computational skills which enable the creation of digital resources and which can also open up exciting professional perspectives for students. Core modules include Methods and Techniques for the Digital Humanities as well as a Tools and Resources course that aims to give students a set of highly adaptable skills in the manipulation and transformation of data, including the ability to write programs in Python.

Non-degree granting digital humanities centers

VII *The Institute for Advanced Technology in the Humanities at the University of Virginia (IATH)*

The IATH was established in 1992 to provide researchers in the arts and humanities with an opportunity to employ sophisticated technical support and advanced computer technology in the service of their scholarship. IATH maintains computers in a separate sub domain of the University's network. It supports and maintains a wide array of software, including XML editing and publishing software, imaging, rendering, and 3D modeling software, and appoints academic Fellows who are provided with consulting, technical support, applications programming, and networked publishing facilities. It cultivates relationships with institutions that are interested in the intersection of computers and cultural heritage. Some years ago the IATH proposed an MA in Digital Humanities to cover topics in design and data structures. The program was not implemented.

VIII *Center for Digital Research in the Humanities, University of Nebraska-Lincoln*:

The Center advances interdisciplinary research in the humanities by creating unique digital content, developing tools to assist scholars in text analysis and visualization, and encouraging the use (and refinement) of international standards for humanities computing. It sponsors workshops, activities, research projects, lectures and other events throughout the year; it has faculty research fellowships available, and sometimes offers post-docs.

IX *Illinois Center for Computing in Humanities, Arts and Social Science (I-CHASS):* offers high performance computing and the humanities, arts, and social sciences by creating both learning environments and spaces for digital discovery. It presents research, computational resources, collaborative tools, and educational programming to showcase the future of the humanities, arts, and social sciences.

X *Matrix: The Center for Humane Arts, Letters, and Social Sciences Online at Michigan State*

Matrix is devoted to the application of new technologies in humanities and social science teaching and research. The Center creates and maintains online resources, provides training in computing and new teaching technologies, and creates forums for the exchange of ideas and expertise in new teaching technologies. Its research focuses on developing and evaluating resources for end users. To this end, MATRIX has developed specialization in cultural informatics to support teaching and research in a digital environment."

Appendix 7: Budget Narrative

    I.   Revenue

We assume an enrollment of 10 students per cohort. The annual increase in tuition and registration fee was calculated with an estimated 4% yearly increase, based on trends from previous years.

The A&S and Graduate School allocated costs recovery corresponds to the portion of tuition revenue that is retained by A&S in part to cover Graduate School charges to the school (based on the number of matriculated students), in part to cover allocated costs charged by the Provost's Office, and in part to go to the pool of A&S graduate fellowship funds.

    II.   Expenses

<u>Personnel:</u>

The Administrative Coordinator (0.5 FTE on the MA budget, the rest on the Mellon-funded Ph.D. in Visual & Media Studies project) will serve as the core administrator for this program and others in the same area, providing budgetary, financial and curricular staff support.

The Lab Manager (0.5 FTE M.A. and 0.5 FTE Mellon VMS Ph.D.) will provide key software and hardware support as well as training modules on the specific tools used in the various research projects.

<u>Other program costs:</u>

Facilities / M&O: This estimate is calculated by square footage and covers Maintenance & Operation costs associated with the Bay 10 area (including utilities, housekeeping etc.)

Bay 10-11 operating expenses: They cover a portion of the shared resources necessary to all programs operating in the Smith Bays 10 and 11 location, including but not limited to office supplies, copiers, printers, miscellaneous equipment for common use, restoration of gallery walls between exhibits, and any other expenses not covered by the individual units' budgets. We based this figure on the annual operating budget of the Department of Art, Art History & Visual Studies, both as provided by A&S and with supplements from the departmental endowments. The population of the Bays 10-11 area will be similar to, if not greater than, the population currently served by the AAH&VS operating budget in the East Duke Building and Smith Bay 12.

Equipment and software: The IT costs included in the budget are designed to build upon and sustain the Wired Lab's infrastructure as a core resource for MA teaching and research.   Included in that ballpark figure are the purchase of additional workstations (esp.

laptops for fieldwork), additional DSLR cameras and lighting kits for field photogrammetry acquisition, Kinect cameras for novel interface design implementations, iOS devices (iPad / iPhone / Android) for mobile app development.   Software includes the standard Bay 11-12 licenses, including Unity Gaming engine. An additional NextEngine Desktop scanner would also be useful as our scanning projects are likely to expand. By the time the MA launches, we'll also (hopefully!) have a laser cutter and 3D printers in Bays 10 - 12, and there will be materials costs associated with the MA's use of these devices.

Project expenses: They will cover ad hoc expenses associated with MA student projects, and will be allocated through a proposal process each year.

Faculty expenses for conferences/workshops/training: The technical tools (hardware and software) used by the faculty and students of the M.A. program for both research and teaching are constantly being updated, and innovation happens at every turn, which means that the faculty need to constantly be keeping up with new developments in order to provide the most advanced expertise to their students and their own scholarship.

Student conference travel support: As has been done over the last few years by AAH&VS for the Ph.D. students, MA students will each have the opportunity to receive a $600 fellowship toward attendance to any conference of their choice related to their field of study. Such fellowships provide valuable opportunities for training and networking to our students.

Loan repayment: This expense corresponds to the debt service for the loan received from Duke's central administration in order to finance the renovation and up-fit of Smith Bay 10.

Prior year deficit repayment: This is the carry-over of any potential deficit from the previous fiscal year.

Reserve: Corresponds to the equivalent of 10% of the anticipated annual tuition revenue, to make up for any potential short-fall in enrollment.