# Preparing for Digital Curation Governance: Educating Stewards of Public Information

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## ABSTRACT

We report results of research into curriculum development for dual degree programs and the development of a dual degree curriculum jointly undertaken by the University of North Carolina's School of Information and Library Science (SILS) and School of Government (SOG). This IMLS-funded program provides training in public information stewardship to four cohorts of eighteen masters' level students. The curriculum development rests upon previous curriculum development projects, examination of masters' programs throughout the world, semi-structured interviews of public sector information experts, recommendations from an expert Advisory Board, and focus group responses from current and alumni project Fellows.

## Categories and Subject Descriptors

J.1 [**Computer Applications**]: Administrative Data Processing – Government

## General Terms

Professional Development, Digital Curation, Electronic Governance

## Keywords

Continuing Education, Digital Information, Public Sector, Government

## 1. INTRODUCTION

Curation of digital assets from all sectors of society provides fundamentally new challenges and opportunities. Nowhere is the need for stewardship of digital content greater than with government information. Government activities and services are now predominately performed using computer systems, and many interactions with government are now performed over the Internet. According to a recent study, 82% of internet users (61% of all American adults) "looked for information or completed a transaction on a government website" in the past year [7]. There has been a dramatic push in many countries toward open access to government data, which will only be successful if appropriate data are retained and long-standing issues of data fragmentation can be addressed [6].



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The public administration literature uses the term "governance" for the exercise of authority and control, in order to advance goals of the state. In contrast to "government," which suggests established structures, governance is a continually evolving and interactive set of processes. The governance concept has spawned many associated terms within both the public and private sectors, including corporate governance, information technology governance, and data governance. Effective governance requires an understanding of stakeholder needs, existing policies, social norms, individual behaviors, incentive structures and characteristics of potential implementation mechanisms.

"Digital curation governance" is an increasingly important arena of activity with associated requirements for professional education and engagement: ensuring the quality, integrity, discovery, access, and meaningful use of digital collections over time. Digital curation governance is a shared responsibility that requires extensive communication, collaboration and mutual learning. Those advancing the cause of digital curation governance must have skills and competencies to navigate the policy arena, manage projects, mobilize stakeholders and dig into the bits of digital collections.

Many schools of information and library science have established curricula to prepare professionals to establish and administer new arrangements between information, technology and people. As these professionals move into higher levels of responsibility and authority, they engage not only in management but also in governance, which includes "specifying the decision rights and accountability framework to encourage desirable behavior in the use" of information and technology [14].

A common theme in the literatures on governance and digital curation has been the shared and distributed nature of the activities. Governance can be driven and shaped by many non-government actors, facilitated by changes in the geopolitical landscape [10] and information technologies [9]. Successful long-term stewardship of public information depends upon contributions and actions of individuals from various sectors. This will require "effective governance mechanisms…to aggregate the collective interest into an effective preservation strategy that ensures that the effort and cost of preservation are appropriately apportioned" [3]. Innovative and timely professional education will need to support new forms and features of governance.

## 2. NEW NEEDS AND EXPECTATIONS

Navigating the current environment increasingly requires the development and implementation of clear policies for data curation. The National Association of State Chief Information Officers (NASCIO) includes among its top state CIO priorities for 2011: document/content/records/e-mail management; data and information management; data ownership in cloud computing; and data governance [11]. Supporting, documenting and evaluating government activities requires responsible stewardship of public digital information, which will involves coordinated efforts by a diversity of players. Professional education for stewards of public information is most effective if it can incorporate fundamental elements of both library and information science (LIS) and public administration curricula.

Many records services and archives have developed and advocated standards, policies and guidelines for public officials. The most common examples are email policies, metadata standards and recordkeeping system functional requirements. While these documents are valuable, they have often not been implemented widely and rarely carry enforcement mechanisms. Records professionals often have not integrated the documents into the larger arenas of policy and public administration in which they operate.

Based on early experiences with electronic records, two prominent themes in the literature are that records professionals must collaborate with and draw expertise from other professionals [8][12], and records professions must influence practices within the public sector, rather than focusing solely on the management of records already transferred to archival repositories [2].

As public digital information was becoming ubiquitous, there was significant parallel growth in "strength and individualization in graduate level archival education programs, a dramatic increase in full-time, tenure-track faculty, a growing number of course offerings often eclipsing the LIS offerings in an archival student's course of study, and the nascent development of degrees acknowledging the archives and records field" [5]. Within the United States, "new archivists and career changers (from another career into archives) increasingly view the master's degree as a necessary requirement" with a master of library and information science (MLIS) or an equivalent being "the degree of choice" [1].

Unfortunately, these developments have not yet translated into widespread education on electronic records [1], nor have most records professionals had any formal education in issues of policy development, implementation or analysis. We believe it is important to develop clear tracks of graduate study that (1) attract students who already have an interest in government service, (2) bring government service opportunities to the attention of those already pursuing ARM careers, and (3) be built in programs that have a robust technology infrastructure.

## 3. EDUCATING STEWARDS OF PUBLIC INFORMATION

In 2009, the School of Information and Library Science (SILS) and School of Government (SOG) at the University of North Carolina, Chapel Hill (UNC-CH) began a project called Educating Stewards of Public Information in the Twenty-First Century (ESOPI-21), funded by the Institute of Museum and Library Services (IMLS). The project has redesigned and enhanced a dual degree program that was earlier developed by SILS and the SOG. Students in the program earn dual MSIS/MPA or MSLS/MPA degrees, in order to prepare for careers in stewardship of digital information in the public sector. In 2011, IMLS funded a second project called Educating Stewards of the Public Information Infrastructure (ESOPI$^2$).

The ESOPI projects have developed educational and professional engagement opportunities. They fund two cohorts of eighteen graduate-level Fellows, who are pursuing dual degrees at SILS and SOG. The projects build on the work of two other IMLS-funded projects: the DigCCurr I & II (Digital Curation Curriculum) projects.

## 4. DUAL-DEGREE CURRICULUM

The MSIS/MSLS and MPA dual degree program at UNC-CH is offered jointly by SILS and the SOG. It integrates policy development, issues of legal compliance, and knowledge of government structures and information with principles, values, methods and technologies of the information professions.

### 4.1 Master of Information/Library Science

The School of Information and Library Science (SILS) at UNC-CH offers two masters degrees: Master of Science in Information Science (MSIS) and Master of Science in Library Science (MSLS). Each degree requires 48 semester hours, which students usually complete in four semesters (two academic years) of full-time study. This includes 24 semester hours of required core courses and 24 semester hours of elective courses. Students must also complete a comprehensive exam and a master's paper.

The MSLS and MSIS core courses address five functional areas: organization, collection and retrieval, information-related behavior, design and evaluation, and management. The majority of the required courses are the same for both degrees. The differences are: MSLS students complete courses on Information Resources and Services (INLS 501) and Resource Selection and Evaluation (INLS 513), while MSIS students complete a course on Information Retrieval (INLS 509); and MSIS students take a class on Systems Analysis (INLS 582), which is not required for MSLS students.

### 4.2 Master of Public Administration

The Master of Public Administration degree at the SOG is also designed to be completed in two years of full-time study. Students must complete at least 44 semester hours of course work. Core courses address: Public Administration Institutions and Values, Organization Theory, Public Service Leadership, Public Administration Analysis and Evaluation, Professional Communications, Human Resource Management, Public Financial Management, and Law for Public Administration.

MPA students must also complete of a summer-long management internship in a position with meaningful administrative responsibilities, and a portfolio during the final semester of study. One component of the portfolio is a comprehensive oral exam.

### 4.3 MPA and MSIS/MSLS Dual Degree

The UNC-CH MPA/MSIS and MPA/MSLS dual degree program is designed to prepare students to deal with information issues in a variety of public sector settings. This dual degree opportunity is designed as a three-year, full-time program, requiring at least 71

semester hours. Nine of the forty-four (44) semester hours required for the MPA may be counted from the SILS curriculum, and twelve of the forty-eight (48) semester hours required for the SILS degree may be counted from the MPA curriculum.

# 5. PRACTICAL ENGAGEMENT COMPONENT

Project Fellows engage in coursework and simultaneously work for 15 hours per week (or 360 hours over the summer) at one of the projects' participating partner institutions: the National Archives and Records Administration, University Archives at UNC-CH, North Carolina Department of Cultural Resources, Town of Chapel Hill, NC Orange County's CIO's Office, NC-LIVE, the H. W. Odum Institute of Research in Social Science, and UNC-CH Environmental Finance Center. The ESOPI projects have provided fellowships to eighteen students 2009-2014.

Tasks performed by the fellows have included the creation of various policies and policy-related guidance documents (on social media, email, and text messaging), authoring an article on eDiscovery software capabilities, revising and developing new online training modules, and advising government energy efficiency and water quality programs on possible financing options and institutional arrangements.

# 6. RESEARCH METHODS

ESOPI research has included investigation of functions and activities reflected in current research literature; professional association guidance on key curricular needs; and current offerings of graduate programs in public policy, information science, and archives and records management.

The project has engaged in various research approaches, including a comprehensive literature and website review of information and library science and public administration masters-level programs, a series of interviews with Advisory Board Members, a series of interviews with public sector information experts, and a focus group study of current and alumni Fellows from the project.

In 2010, we conducted two sets of semi-structured phone interviews with experts in public administration and public information management. The first eight interviews were with members of the ESOPI advisory board. These were followed by interviews with ten public-sector professionals who had presented their work at the 2010 Best Practices Exchange.

In 2011, we conducted a focus group with four ESOPI fellows in their final semester of the dual degree program. The discussion revealed many program strengths, challenges and opportunities for improvement.

# 7. FINDINGS

Findings can be characterized in terms of factors related to "stewardship of public information," desired knowledge and competencies, current professional challenges, and SILS/SOG dual degree integration.

## 7.1 Interviews

When asked to explain what is meant by "stewardship of public information," participants in our studies have provided a variety of answers, often emphasizing characteristics of stewardship that are particularly relevant to their own jobs or disciplines. However, there were four main themes that emerged from the interview data about this issue. First, many interview participants discussed the importance of being able to understand and apply the definition of public record, whatever that might be within one's particular jurisdiction. A second theme was balancing privacy or confidentiality on the one hand with public access on the other. A third theme was that of needing to understand the value of public information (what makes certain forms of information valuable and how to convey that importance to relevant stakeholders). Finally, interview responses suggested the need to differentiate the role of custodian as opposed to owner which may overlap but often reside in different individuals or organizations).

Many of the interview questions related to desired knowledge and competencies. Participants identified many different responses, which we have grouped into three broad categories: contextual background knowledge; technical and operational skills; and social skills and approach to work (see Table 1).

**Table 1 - Desired Knowledge and Competencies**

- Contextual background knowledge - how government works, legal frameworks, accountability mechanisms, third party agreements and contracts, comprises in information lifecycle, balance between privacy and accessibility, planning and evaluation processes, project management and requirements definition and design, recordkeeping requirements, patterns of information use, environmental and budgetary drivers of workplace evolution
- Technical and operational skills - integrating technological knowledge with understanding of government functions and processes; allocating storage and space; identifying and recommending access methods, preservation techniques and system designs; data quality and data management, metadata and access provision via interface design; identifying and explaining which information does or does not have long-term value; data and workflow modeling
- Social skills and approach to work - verbal and written communication skills; teamwork skills; "thinking on one's feet"; appreciating importance of speaking carefully and thoughtfully in the public sector; commitment to open government and public accountability; focus on creating efficiency and economy in processes; thinking at the enterprise level to act as change agents; capabilities to gain sponsorship, build coalitions, and get support by engaging in stakeholder identification and team building; ability to "manage people when you are not their boss"; curiosity and willingness to engage in ongoing education

We also asked interview participants about current professional challenges. Responses fell into the following categories: limited funding for infrastructure (including storage); insufficient IT skills of responsible staff; outreach to stakeholders and making business case for investment in information stewardship; characteristics of data creation (large volume, highly distributed, often unstructured, inconsistent metadata conventions and quality); underdeveloped user interfaces and access mechanisms; and defining new job roles and categories.

Members of the ESOPI Advisory Board have also provided substantial input on how to approach the dual degree, what

practical work experience contexts to pursue, and how to set the future direction of the dual degree.

## 7.2 Focus Group and Dual Degree Findings

Our research has revealed numerous benefits and complementarities of completing both degrees. Interview participants and graduating ESOPI fellows have identified a variety of advantages, including complementary knowledge, skills and perspectives, as well as a wider range of employment opportunities.

We have also learned about cultural differences between the SOG and SILS. The SOG has a more regimented curriculum and smaller number of students, resulting in a more tight-knit cohort of students. The SOG also places heavy emphasis on preparing students to behave as public officials, with associated expectations for personal presentation and interaction. By contrast, SILS has a more individually-crafted curriculum and a larger set of students, resulting in less of a cohesive cohort. SILS courses often place great emphasis on scholarly knowledge and recent research literature.

Feedback from ESOPI Fellows has revealed that the majority of content from the MSIS/MSLS and SOG degrees is complementary, rather than being repetitive. The dual degree has been designed to allow students to replace similar courses from one program to the other, e.g. the SOG course on Public Service Leadership (PUBA 711) can substitute for the SILS course on Management for Information Professionals (INLS 585). Courses in the two programs related to research methods, analysis and evaluation do have similarity in scope, but they address the topics quite differently given the nature of the two programs. SILS is considering changes to its research methods course sequence, and we may need to revisit this area of the dual degree.

# 8. CONCLUSIONS AND IMPLICATIONS

Stewardship of public information is a fundamental responsibility of a democratic society. Providing appropriate access to public information promotes accountability, rights of citizens, effective administration of policy, and social memory. Public officials and public servants must increasingly make and enact decisions related to information systems; this requires an understanding of ways in which people, information and technology can best complement each other. Information professionals are also increasingly required to engage in policy discussions and processes; this requires an understanding of the history, principles, processes and methods of public administration.

Fundamental to ensuring successful e-governance is appropriate stewardship of the information that supports, documents and advances governance processes. This work includes its own flavor of governance, which we have called digital curation governance. Enabling it will require professionals with a range of skills and capabilities that may not have previously been considered part of public administration or the work of information professionals. We see great potential for advancing professional capabilities required at the frontier of public information stewardship.

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