Electronic Records Management: A Course Content Analysis

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Abstract: Electronic records management (ERM) started to appear as a specialized course in archival curricula in the early 1990s and now more than fifteen archival programs in North America offer ERM courses. This study provides a systematic analysis of the content of electronic records management (ERM) syllabi currently taught in archival education programs. The study collected weekly topics from ERM course syllabi available online and identified common topic groups, and analyzed how the topic groups are distributed among the programs. The findings of the study help gain a better understanding of ERM course content and its distribution among the archival programs in North America and can be used as a guide for ERM course design and topic development.

Introduction

Research focused on course content analysis has been traditionally weak in archival literature. In 1988, the Education Officer of the Society of American Archivists (SAA), Timothy Ericson, observed that in designing professional education programs, archivists spent a lot of time thinking in terms of workshops, seminars and institutes, and paid "too much attention to the *form* of archival education, and not enough to its *content*." [1] In his study of graduate archival education course work published in 1994, Richard Cox also commented that the course content should be included in the archival researchers' agenda because content analysis of archival teaching materials such as course syllabi "would be a fruitful additional way to assess the nature of graduate archival education programs."[2]

A couple of studies have been published with a focus on content analysis of archival introductory courses. In 1993, Timothy Ericson used the intellectual framework outlined in the archival graduate guidelines and studied more than a dozen existing syllabi of introductory archival courses. In doing so, Ericson generated a list of topical areas covered in a typical archival introductory course and the average amount of time archival educators spent on each topical area.[3] In 1997, James O'Toole conducted "a micro-level examination" of the basic introductory archives course along with "a macro-level assessment" of the state of the archival curriculum. O'Toole contacted archival programs listed in the SAA education directory and collected course syllabi, reading lists, and other course materials. He compared and analyzed course outlines, reading lists and assignments, and identified several pedagogical concerns emerging from the course syllabi. One major concern regarding course content was too many class meetings assigned to site visits or guest speakers, which "largely reduced" the role of principal instructor to "the role of master of ceremonies." O'Toole raised the issue of archival educators' responsibility of teaching archival students "the intellectual substance of our discipline."[4] More recently, in a

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[1] Timothy L. Ericson, "Professional Associations and Archival Education: A Different Role, or a Different Theater?" *American Archivist* 51 (1988): 299.

[2] Richard J. Cox, *The First Generation of Electronic Records Archivists in the United States: A Study in Professionalization* (New York: Haworth, 1994), 159.

[3] Timothy L. Ericson, "'Abolish the Recent': The Progress of Archival Education," *Journal of Education for Library and Information Science* 34 (1993): 33.

[4] James M. O'Toole, "The Archival Curriculum: Where Are We Now? *Archival Issues* 22 (1997): 112

2006 study, Bastian and Yakel also provided an example of topical analysis of archival introduction course syllabi. Using a variety of content analysis methods, they analyzed thirty archival introduction course syllabi to identify the most frequently taught topics and the depth or intensity of teaching those topics. They read through each syllabus, noted the weekly topics covered, verified the topics through readings, and examined additional course descriptions in each syllabus. The process helped identify both manifest and latent content of the course and find out the twelve most frequently covered topics in archival introductory courses.[5]

It is worth noting that Ericson, O'Toole, and Bastian and Yakel all conducted content analysis on archival introductory course syllabi. To date, very little attention has been paid to analysis of course content of specialized courses in archival curricula. Electronic records have been incorporated into the archival curriculum in North America for more than two decades. This study provides a systematic analysis of the content of electronic records management (ERM) courses currently taught in archival graduate education programs. The study collected weekly topics from ERM course syllabi available online and identified common topic groups, and analyzed how the topic groups are distributed among the programs. The findings of the study help gain a better understanding of ERM course content and its distribution among the archival programs in North America and can be used as a guide for ERM course design and topic development. They can be used as knowledge base to facilitate further research on electronic records education in the archival curriculum. The research design of the study contains the following steps:

- Identify graduate programs in North America that formally include archival courses in their curricula
- Select programs that offer electronic records management as specialized courses, and collect ERM course syllabi from each program
- Collect weekly topics from each syllabus and analyze topic content to generate common ERM topic groups
- Calculate and analyze the distribution of weekly topics in each ERM syllabus representing each program
- Analyze and interpret the distribution pattern of each topic group among archival programs that provide ERM course offerings
- Generate a popularity list to find out topic groups that are most (or least) likely to be covered in ERM courses in archival programs

Research Data Source: ERM Course Syllabi and Weekly Topics

The management of electronic records has been established as one of the major specialized courses in archival education. By December 2013, the *Society of American Archivists' Directory of Archival Education* listed 40 universities and colleges in North America that provided archival education at various levels, mostly for master's degrees and graduate certificates.[6] Among the 40 archival education providers listed in the directory, fifteen of them offer ERM courses in their curricula, based on the course information provided by their program websites. Course titles may vary but share similar course descriptions and objectives. As shown in Table 1, close to 50% of the programs use specific course titles such as "electronic records management" or "management

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[5] Jeannette A. Bastian and Elizabeth Yakel, "Towards the Development of an Archival Core Curriculum: The United States and Canada," *Archival Science* 6 (2006): 133-150.
[6] Society of American Archivists (SAA), *Directory of Archival Education*, accessed December 28, 2013, http://www2.archivists.org/dae.
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of electronic records". Others contain additional terminologies such as digital records and electronic recordkeeping.

Course Title	Occurrence in Programs
Electronic records management	4
Management of electronic records	2
Electronic records	1
Electronic document and records management	1
Electronic recordkeeping systems and issues in electronic recordkeeping	1
Electronic records and digital archives	1
Management of electronic records & information	1
Managing records in electronic environments	1
Management of digital records	1
Introduction to electronic and digital records	1
Preservation of digital records [Previously: Topics in the management of records: The continuing preservation of electronic records]	1
Total	15

Table 1 ERM Course Titles

Table 1 displays ERM course titles offered in 15 archival programs. The majority of the programs that offer ERM courses have made their course syllabi available online or on request, but not all are current versions. After a careful review of the websites of the 15 programs that offer ERM courses, a total of 12 ERM course syllabi were located from the 12 programs. Among them, 58% (7 syllabi from 7 programs) were 2013 versions and 42% (5 syllabi from 5 programs) were earlier versions (2009-2012). For each syllabus, all weekly topics and associated reading lists were carefully reviewed. With the exception of guest speaker talks and course wrap-up, weekly topics that contain course content descriptions were collected and recorded for analysis, ranging from 9 to 13 topics per syllabus.

A total of 140 weekly topics were collected from the 12 ERM syllabi. Each of the 140 weekly topics were carefully reviewed and assigned to a topic group based on its content description. For instance, "business environment and the impact of technology on institutions" and "technology's impact on the workforce and the information professionals" were assigned to the topic group named "business and technology environments". "Managing desktop records", "managing email", and "records issues for Web 2.0" were assigned to the topic group called "managing specific types of electronic records". The analysis generated 12 topic groups, each containing 5 to 21 weekly topics, as displayed in Table 2.

Topic Group #	Topic Group Title	# of Topics (Total 140)
1	Introduction: overview, key concepts, knowledge and skills	15
2	Business and technology environments	5
3	Requirements, standards, and best practices	11
4	Legal, ethical, social, and compliance issues	11
5	Electronic records management programs	5
6	Records management processes and techniques	21
7	Managing electronic records in various environments	11
8	Managing specific types of electronic records	20
9	System approaches and software solutions	8
10	Records access and use	8
11	Long-term preservation	15
12	Electronic records and digital archives	10

Table 2 ERM Course Topic Groups

Result Analysis: ERM Course Topic Distribution

Table 2 reveals that the 140 weekly topics collected from the 12 syllabi are not evenly distributed among the 12 topic groups. For example, some topic groups contain more than 20 weekly topics and some only contain 5 weekly topics. As weekly topics are taken from 12 course syllabi which represent 12 unique archival programs, this implies that the content coverage of ERM course varies from program to program. To understand how ERM topics are distributed among the programs, the researcher counted the number of topics covered by each syllabus (representing each program) and calculated the ratio of topic-per-program. Table 3 displays the ERM topic distribution data from 12 programs for each of the 12 topic groups. The table displays topic group number, topic group title, the number of weekly topics for each topic group, the number of archival programs that cover each topic group in their ERM syllabi, topic-per-program ratio (i.e., the number of weekly topics divided by the number of programs), and program coverage percentage (i.e. the percentage of the total number of the programs (12) over the number of programs that cover each topic group). The table displays the summary and analytical data, followed by detailed description and analysis for each topic group.

Topic Group #	Topic Group Title (total 12)	Weekly Topic # (total 140) (group average 11.67)	Program # (total 12)	Topic-per-program Ratio	Program Coverage Percentage
1	Introduction: overview, key concepts, knowledge and skills	15	12	1.25	100%
2	Business and technology environments	5	5	1	42%
3	Requirements, standards, and best practices	11	8	1.38	67%
4	Legal, ethical, social, and compliance issues	11	5	2.2	42%
5	Electronic records program management	5	5	1	42%

6	Records management processes and techniques	21	11	1.9	92%
7	Managing electronic records in various environments	11	6	1.8	50%
8	Managing specific types of electronic records	20	10	2	83%
9	System approaches and software solutions	8	6	1.3	50%
10	Records access and use	8	4	2	33%
11	Long-term preservation	15	7	2.1	58%
12	Electronic records and digital archives	10	5	2	42%

Table 3 ERM Topic Distribution Summary

1. Introduction, overview, key concepts, knowledge and skills
Topics in this group provide overview of the field and define key concepts of modern records, record making and recordkeeping; electronic records and their context; records management core principles and their evolution; competencies in electronic records management; and roles and responsibilities for electronic records managers.

There are a total of 15 weekly topics in the introduction topic group, higher than the average number of weekly topics offered in all programs (11.67). The total number of programs that cover this topic is 12 (100% coverage), that is, all the programs that offer ERM courses have this topic in their syllabi. The topic-per-program ratio is 1.25. In other words, each program devotes at least one week to this topic, and two programs use more than one week to deliver the introduction topic. Looking at the overall program coverage percentage, this is the only topic that has the full program coverage. In other words, the general introduction to the field is the only topic that all programs have in common in their ERM course syllabi.

2. Business and technology environments
Topics in this group discuss changes in business and technology environments and impact on institutions, workplace and information professions; and the changing nature of communications, organizational structures, and workflows. It also covers information explosion and decentralization of recordkeeping; accountability landscape; knowledge management; and recordkeeping behaviors.

There are a total of 5 weekly topics in the business and technology group, significantly lower than the average number of topics offered in all programs (11.67). The topics are equally distributed over 5 programs. Out of the total of 12 programs, only five (42%) include this topic group in their ERM syllabi. In other words, almost two-thirds of the programs do not offer the business and technology topic group. The topic-per-program ratio is 1, which indicates no more than one week is used to deliver the topic. Consequently, this topic group is less likely to have broad coverage in all programs.

3. Requirements, standards, and best practices
This topic group covers national and international research; industry best practices and standards; recordkeeping requirements, laws and regulations relating to electronic records management; trust in records and recordkeeping systems; creating authentic electronic records; and functional requirements for electronic recordkeeping, policies, guidelines, and strategies.

There are a total of 11 weekly topics in the standards topic group, very close to the average number of topics offered in all programs (11.67). The program coverage is 8, that is, 67% of the programs include this topic in their ERM syllabi. The topic-per-program ratio is 1.38, that is, some programs use more than one week to deliver the content of the topic group. Looking closely at the topic list, a couple of programs spend two to three weeks on this topic group. All this indicates this is a topic group explored in depth by some programs.

4. Legal, ethical, social, and compliance issues
This topic group focuses on legal, ethical, social and compliance considerations regarding the management of electronic records, including laws, regulations, and court cases; evidence, discovery, and admissibility; compliance and auditing; freedom of information and privacy; information secrecy and security; and records-based accountability.

There are a total of 11 topics in the compliance topic group, very close to the average number of topics offered in all programs (11.67). However, only five programs choose to cover the compliance topic group, which is less than half of the total programs (42%). The topic-per-program ratio is 2.2, the highest among all topic groups. The numbers indicate that topics in this group are mostly offered by a few programs and not evenly distributed in all programs. Looking closely at the topic list, one program covers topics in this group in four weeks, and three other programs cover them in two weeks. The data shows this topic group can be highlighted emphatically by a few programs, but overlooked by many other programs.

5. Electronic records program management
This topic group introduces electronic records management programs; project management and implementation; project assessment and evaluation; program components; partnerships and collaborations; incentives for establishing a program for the management of electronic records; strategic vision; and policy and procedure development.

There are a total of 5 topics in this group, much lower than the average number of topics offered in all programs (11.67). However, only five of them (42%) include this topic in their ERM syllabi, and almost two-thirds of the programs do not offer this topic as a separate topic. The topic-per-program ratio is 1, which indicates that those who cover this topic group use no more than one week to deliver the topic. The data shows that it is less likely this topic will have a general coverage in all programs.

6. Records management processes and techniques
Topics in this group cover creating, identifying, capturing, and appraising electronic records; inventorying and scheduling electronic records; functional analysis and classifying records; management of active records and inactive records; records retention and lifecycle issues; records disposal; recordkeeping metadata; document imaging and contracting; and designing and implementing recordkeeping systems.

There are a total of 21 topics in the processes and techniques group, highest among all topic groups, and almost twice the average number of topics offered in all programs (11.67). In addition, eleven out of the 12 programs include this topic group in their course syllabi. The highest topic numbers shared by the majority of programs results in a very high topic-per-program ratio (1.9) and program coverage (92%). This means not only most programs cover topics in this topic group, some of them also cover them in multiple weeks. The review of the detailed list shows one program uses as many as five weeks to deliver the topic, one program uses

three weeks, and four programs use two weeks. The data indicates this is an important topic group recognized by almost all programs and heavily covered by some of them.

7. Managing electronic records in various environments
This topic group discusses electronic records management in various environments: governments and international organizations; business and corporate environments; health care organizations; personal recordkeeping practices; and personal digital archiving.

There are a total of 11 topics covered in this group, very close to the average number of topics offered in all programs (11.67). However, only 6 programs are listed, representing half of the total programs. A high topic-per-program ratio (1.8) consequently shows that topics are covered by a few programs in multiple weeks – one program over three weeks, and three programs in two weeks. An interesting fact about the distribution of this topic group is more than half of the total topics covered in this group are devoted to personal electronic recordkeeping and personal digital archiving. Obviously there is growing professional attention to individual recordkeeping and digital archiving behaviors and practices.

8. Managing specific types of electronic records
Topics in this group include managing desktop records; managing email and other unstructured data as records; managing structured information as records; Web content management; managing Web records; Web archiving; Web 2.0 electronic records management; social media; and records in the cloud.

This is another topic group high on the list, only lower than the topic group of *Records management processes and techniques*. There are a total of 20 topics distributed among 10 programs. The program coverage is fairly high (83%), so is the topic-per-program ratio (2), which means that not only a large number of programs cover this topic in their syllabi, most also take multiple weeks to deliver the content. The analytical data shows that four programs cover this topic group in three weeks, and two programs cover it in two weeks. With a total number of 6 programs that devoted two to three weeks to the topic group, this is obviously a popular topic group readily explored in depth by the largest number of programs.

9. System approaches and software solutions
This topic group covers information systems and design features; computer systems to support recordkeeping and records management; retention management software systems; available tools and technologies and limitations; electronic records management systems and functional requirements; enterprise content management systems; institutional repositories; and document management and imaging systems.

There are a total of 8 topics in this group shared by 6 programs. The topic-per-program ratio is 1.3, which shows some programs use more than one week to cover the topic. As shown in the data, two programs cover the topic in two weeks. The 50% program coverage reveals that half of the total programs leave the topic out of their syllabi. This may be a good topic group, but obviously not everyone includes it in the course syllabus.

10. Records access and use
This group covers topics such as description and role of metadata in management of electronic records; record granularity and metadata; organizing records for access; copyrights and other intellectual property issues; free access to information; security and access; and access requirements and constraints.

With only 4 programs involved and 33% program coverage, this is the topic group with the lowest program participation. There are a total of 8 topics covered, which has led to a high topic-per-program ratio (2). This shows that most of the programs in this group deliver the topic in multiple weeks – one program for three weeks, and two programs for two weeks. Depending on program preference, this can be a topic explored in depth by a small number of programs, but left out by most of them.

11. Long-term preservation
Topics in this group addresses long-term preservation of electronic records; preservation of form content and context; electronic storage media; digital curation and preservation strategies, models, techniques, and technologies; media and formats; digital conversion processes; migration and emulation, data recovery, forensics, and digital archaeology.

This is the topic group with a fairly large number of topics (15), but relatively small program coverage (7 out of 12, 58% of the total programs). The high topic-per-program ratio (2.1) indicates that most programs have more than one weekly topic in this group. As shown in the detailed list, one program uses four weeks, one program uses three, and another two use two weeks. Although a popular topic group judging by topic number, quite a few programs choose not to include it in the course syllabi.

12. Electronic records and digital archives
Topics in this group addresses issues relating to construction and administration of electronic records and digital archives in large or small archives; appraisal and custody of electronic records; preservation of provenance and context; digital archival material accessioning, arrangement and description, and discovery and access.

There are a total of 10 topics in this group, slightly lower than the average number of topics offered in all programs (11.67). However, the program coverage is only 42%, with 5 programs out of 12. The result is therefore reflected in the high topic-per-program ratio (2), that is, the majority of the topics are contributed by a few programs that cover the topic in 2 to 3 weeks. Again this is not a broadly adopted topic, but those who choose to cover it, tend to do it intensively.

Result Analysis: ERM Course Topic Coverage Frequency

The analysis of each topic and its distribution shows that the topic coverage varies from program to program. Programs can expand some of the topic groups and offer them in multiple weeks. Consequently, some topic groups can be eliminated and not covered at all in the course syllabus. The topic coverage frequency analysis in this session helps to find out the topic groups mostly likely to be covered by archival programs and those topic groups mostly likely to be left out.

If we arrange the topic groups in the descending order of the number of topics in each group, four topic groups are at the top of the list. They are: records management processes and techniques (21 topics), managing specific types of electronic records (20 topics), introduction, overview, key concepts, knowledge and skills (15 topics), and long-term preservation (15 topics). Two topic groups are at the bottom: business and technology environments (5 topics), and electronic records management programs (5 topics).

If we arrange the topic groups in descending order of program coverage, the topic groups that are covered by more than 50% of the programs are: introduction, overview, key concepts, knowledge and skills (100%), records management processes and techniques (92%), managing specific types

of electronic records (83%), requirements, standards, and best practices (67%), and long-term preservation (58%). At the bottom of the list is records access and use (33%).

If we arrange the topic groups in descending order of topic distribution ratio, the topic groups that have distribution numbers higher than 1.5 are: legal, ethical, social, and compliance issues (2.2), long-term preservation (2.1), managing specific types of electronic records (2), electronic records and digital archives (2), records access and use (2), records management processes and techniques (1.9), and managing electronic records in various environments (1.8). Two topic groups are at the bottom of the list: business and technology environments (1), and electronic records management programs (1).

If a topic group contains a higher number of topics, it means more topics in this group are covered in the syllabus. If a topic group has a higher percentage of program coverage, it means more programs include topics in this group in course syllabi. If a topic group has a higher topic distribution ratio, it means topics in this group are more likely to be covered in multiple weeks. Naturally, if a topic group stands high on most of the three categories, the topic should be a popular one and most likely to be covered by more programs. Judging by all three criteria, the following topic groups have more frequent occurrences and are more likely to be covered in ERM courses by most programs, and possibly in more than one week:

- Introduction, overview, key concepts, knowledge and skills
- Records management processes and techniques
- Managing specific types of electronic records
- Long-term preservation

The following topics remain mostly in the middle range judging by the three criteria, which implies that some programs include them in course syllabi (possibly in multiple weeks) and some leave them out:

- Requirements, standards, and best practices
- Legal, ethical, social, and compliance issues
- Managing electronic records in various environments
- System approaches and software solutions
- Electronic records and digital archives

The following topics remain at the bottom for each of the three criteria, and, consequently, they are less likely to be covered in ERM courses by most programs:

- Business and technology environments
- Electronic records program management
- Records access and use

The information generated from the topic frequency analysis is very useful because it provides a framework for a generic and expandable ERM course outline. Depending on how they are designed to meet the instructional needs of each program, ERM courses currently taught at the archival programs can vary from program to program. The framework can help to sketch a general trend of course content coverage. The course can focus on the most frequently occurred topics and cover them in multiple weeks. It can also be expanded to include topics in the middle range or even the bottom range with a wider topic distribution. It is a flexible framework that can accommodate a variety of ERM course topic coverage needs.

Conclusion and Further Research

Electronic records management started to appear as fully developed graduate level courses in the mid-1990s and currently fifteen archival programs offer ERM courses in their curricula. Through the analysis of course weekly topics covered in ERM courses, this study helps to identify the topics of ERM courses and their distributions among the archival programs. The analysis helps to reveal the number of topics in each group, the percentage of topic coverage in each program, and the resultant topic-per-program ratio. The data thus generated helps to identify ERM course topics that are most (and least) likely to be covered among archival programs.

Although a total of twelve course topics have been identified from the existing ERM syllabi, the analysis shows that they are distributed unevenly among the archival programs. More than 50% of the programs only cover six to four course topics out of the twelve course topics identified in the study. If half of the programs offering ERM courses in their archival curriculum choose to cover only half of the course topics, it can be concluded that those programs mostly focus on certain course topics and use multiple weeks to cover each of them. This study also identifies popular topics covered in ERM courses. In addition to a general overview, ERM courses will generally cover records management techniques and techniques, discuss how to manage specific types of electronic records, and introduce long-term preservation of electronic records. They are less likely to include the discussion of electronic records creation environments, management programs, and access and use, but more likely to cover legal requirements, professional standards, best practices, and software systems developed and designed to tackle electronic records management challenges. Generated from the collective data drawn from recent course syllabi, the topic groups and their distribution and frequency analysis reported in this study can be used as a guide for ERM course design and topic development.

As stated in the research design, this study mostly focuses on the analysis of weekly topics and topic distribution in archival programs. The study generated a "core" weekly topic list for ERM courses and revealed the level of popularity for the course topics. The study could be expanded upon to further describe the current state of ERM course offerings in archival graduate programs, for example, through a review of assigned readings with the intent to build a "core" literature for ERM education. The research data (ERM course syllabi) are taken from 12 archival programs, and some of them are not the current versions. Ideally the future study would collect syllabi from all 15 programs for ERM courses taught in the most recent academic year.

When ERM is offered as a specialized course in the archival curriculum, decisions must be made about course topics to be covered as well as the scope of the content coverage in relation to other related courses in the archival curriculum. The ERM course can be offered along with several courses of related subject matters, such as records and information management, digital curation and preservation, and digital archives. Further research questions can be developed to find out how ERM courses are offered in combination with related course areas, what are the impacts of course combinations on choices of ERM course topics, and whether there are any correlations between the course combinations and ERM course topics. Built upon the course content analysis in this study, further research on ERM course combinations and interrelations with related course areas will provide a unique perspective on the structures of current archival curriculum and the roles of electronic records in archival graduate education.

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