Teaching Electronic Records Management in the Archival Curriculum

Jane Zhang

Department of Library and Information Science, Catholic University of America.
Email: zhangj@cua.edu

Electronic records management has been incorporated into the archival curriculum in North America since the 1990s. This study reported in this paper provides a systematic analysis of the content of electronic records management (ERM) courses currently taught in archival education programs. Through the analysis of course combinations and their relationships with ERM topic groups, the study helps identify the scope of the content coverage of ERM courses in relation to other courses in the archival curriculum. The study experiments on a method of analysis to explore the relationship between course content and related course offerings. The findings of the study provide evidence-based information for archival educators to analyze and rationalize their ERM course content coverage. It also provides opportunities for program leaders to review and design their course offerings in the archival curriculum.

Keywords: Electronic records management; Archival curriculum; Archival education; Content analysis; Records management; Digital preservation; Digital archives

Introduction

The impact of electronic records and digital information on archival knowledge and skills are substantial and multitudinous. Back to the early 1990s, archival research generated an electronic records curriculum of six content areas (Hedstrom, 1993). Early research also found that the archival community made significant contributions to research and development in the digital information environment in fields such as information integrity, metadata, knowledge management, risk management, and knowledge preservation (Gilliland-Swetland, 2000). Later research found the knowledge and skills that information professionals needed to work with electronic records and other digital materials included information ecosystems, digital documentary forms, archival and records management functions, as well as management, personal, and communica-

tion skills (Pearce-Moses & Davis, 2008). More recently, a six-dimensional matrix of knowledge and skills was developed for identifying and organizing the material to be covered in the digital curation curriculum (Lee & Tibbo, 2011). Recent research reports that digital curation and related area courses have been added to LIS, archival, or museum studies curriculum. This has provided a convergent view of digital assets, conceptual models, and technology skills, but a divergent view of collection or content type in individual fields (Condon, 2014).

Incorporating such substantial knowledge and skill requirements into archival curricula is a major challenge for archival educators. Literature suggests that archival education in North America has experienced a dramatic increase of the number and variety of course offerings in archival programs (Bastian & Yakel, 2006). As an example, the number of electronic records

management (ERM) courses taught in archival studies programs increased from two in 1993 to fifteen by the end of 2013 (Zhang, 2015). As a new addition to the archival curriculum, electronic records have played an important role in shaping archival education for the past two decades. The knowledge of how electronic records management courses are taught along with other archival courses is therefore a key to understanding how the archival curriculum has evolved today, and more importantly, continues to develop in the future.

To investigate how electronic records are incorporated into archival curriculum, the study collected and analyzed archival program descriptions and ERM course syllabi made available electronically by archival programs online. The research focused on a systematic analysis of ERM course content and experimented on a method of analysis to explore the relationship between ERM course content and related course offerings.

Three research questions were specifically addressed:

1. What are the major course areas offered in archival programs that directly relate to electronic records?
2. How are ERM courses offered in combination with related course areas?
3. What are the impacts of course combinations on choices of ERM course topics and are there any correlations between them?

Through the analysis of course combinations and their relationships with ERM topic groups, the study helps to identify the scope of the content coverage of ERM courses in relation to other courses in the archival curriculum. The findings of the study provide evidence-based information for archival educators to analyze and rationalize their ERM course content coverage. It also provides opportunities for program leaders to review and design their course offerings in the archival curriculum.

The Emergence of ERM in Archival Studies

The discussion about incorporating electronic records into the curriculum of archival education in North America started to appear in literature in the 1990s. Richard Cox (1994) conducted an analysis of the graduate archival education course work in 1990 and reported that, of the 227 courses being offered in North America that year, two full courses were taught on electronic records: one course titled "Introduction to Machine Readable Records" taught at the University of Michigan and another titled "Electronic Records" taught at the University of British Columbia (pp. 142–144). Anne J. Gilliland-Swetland (1993) reported a new course in the archival administration of electronic records developed at the University of Michigan's School of Information and Library Studies. Gilliland-Swetland noted that when the University of Michigan was offering the course, the University of British Columbia had incorporated electronic records into its archival curriculum for some years, the University of Texas was teaching a seminar in electronic records, and the University of Pittsburgh was planning a major electronic records education and research initiative (p. 533). Later studies found more programs in North America offered electronic records as a specialized archival course. As reported in a study conducted by Jeannette Bastian and Elizabeth Yakel (2006), after more than ten years' development, the number of schools that offered electronic records courses increased from two to fourteen, and the course of "electronic records" was identified as one of the nine archival core courses, along with "advanced introduction", "appraisal", "arrangement and description", "introduction", "legal issues", "preservation", "records management", and "reference" (pp. 140–141).

Early discussion of electronic records management also includes electronic records curriculum and content area development. In 1993, based on her assessment

of the knowledge and skills that archivists need to administer to electronic records and apply to automated techniques in archives, Margaret Hedstrom (1993) proposed a series of learning objectives and outlined the content areas of an electronic records curriculum: (1) impact of automation on individual and organizational recordkeeping practices, (2) primary and secondary uses for electronic records, (3) documentation and description requirements in automated systems, (4) identification of user communities and user requirements for electronic records, (5) physical preservation of magnetic and optical media, and (6) information technology standards, compatibility, and migration (p. 430).

Hedstrom (1993) proposed that the curriculum content should be included in "courses, workshops, and seminars" designed to address the learning objectives of electronic records and archival automation training and education (p. 430). To find out how the content of electronic records was incorporated into graduate archival education, Richard Cox (1994) compared Hedstrom's electronic records curriculum proposal with existing courses at the University of Pittsburgh School of Library and Information Science offered in 1991–1993. Cox's study revealed that the course curriculum covered two of the six content areas proposed in Hedstrom's electronic records curriculum: impact of automation on individual and organizational recordkeeping practices, and information technology standards, compatibility, and migration (pp. 150–151). At the University of British Columbia, the management of electronic records was available as a senior course and the content of the course was reflected in its course objectives described by Terry Eastwood (1996) as: management processes of creating, maintaining, and controlling electronic records, understanding of relevant information technology standards, and impact of information technology on society's creation, maintenance, and use of records in electronic form (p. 86).

Early archival literature, as shown in the review, provided a broad outline of ERM course content coverage. As the number of archival programs that offered ERM courses was very small, detailed analysis based on empirical data was not possible. With more programs offering ERM courses in archival studies curriculum, the knowledge of how electronic records are taught in tandem with other related subjects can be better understood. It is now possible to make an analysis of ERM course content in the context of related courses offered in the archival curriculum. The current study examined ERM as a component of archival studies programs and selected the data source accordingly. The focus of the study was derived from the challenges the author has faced in archival curriculum development when new and involving digital components have been added to archival course repertoire.

ERM Course Area Analysis

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 (SAA, 2013). Among the 40 archival education providers listed in the directory, fifteen of them offer ERM courses in their curricula. These data are based on the course information provided by course providers' websites. As a specialized course in the archival curriculum, the ERM course is taught along with other courses in the programs related to electronic records. To identify course areas directly relating to electronic records and the distribution of courses among programs, the study reviewed course descriptions of 40 programs made available on the *SAA Archival Education Directory* and archival program websites. The researcher also consulted the ERM common topic groups identified in her previous analysis of ERM course content (Zhang, 2015). The review

process identified the following 5 course areas covered in the programs as well as the number of programs that offer each of the course areas:

- Archival foundation courses (40 programs)
- Record management (RM) courses (21 programs)
- Electronic records management (ERM) courses (15 programs)
- Digital preservation courses (10 programs)
- Digital archives courses (3 programs)

The archival foundation course area mainly contained a series of courses that cover archival theories, principles, and major functions (e.g., appraisal, arrangement and description, reference and outreach, preservation, management, practicum). The remaining four areas contained a single course in each area and collectively cover a complete lifecycle of electronic records management, including records management principles and techniques, electronic records management applications, electronic records long-term preservation, and construction and administration of electronic and born-digital records archive. Among the 40 archival programs reviewed in this study, all the programs (100%) offered archival foundation courses, 21 programs (52.5%) offered records management courses, 15 programs (37.5%) offered electronic records management courses, 18 programs (45%) offered digital preservation courses, and 3 programs (7.5%) offered digital archival courses.

How much can we learn about electronic records education in archival graduate curricula from these data? First of all, all programs considered it essential that students should have a solid knowledge base of archival theory and practice. Except for one program that only offered one introductory archival course, all other programs offered two and more archival courses. A typical pattern of archival courses is one or two basic or advanced introductory courses on archival theory and practice plus one or more courses that covered major archival functions (such as appraisal, arrangement and description, preservation, reference and outreach, management, and internship/practicum).

To highlight the importance of records management knowledge and skills for archival students, more than half (21 out of 40) of the programs offered a separate course in records management instead of having the content embedded in a general introductory archival course. Electronic records management is considered distinct knowledge and skills by more than a third (15 out of 40) of the programs since they offered electronic records management courses in addition to, or instead of, records management. Close to half (18 out of 40) of the programs may have considered digital preservation as a distinct knowledge and skill set from electronic records management, especially when they offered the course along with RM or ERM. Although the number is very low (3 out of 40), some programs started educating archival students on the construction and administration of digital repositories for permanent electronic records and other born-digital materials.

While archival curricula may still maintain a traditional course pattern of archival foundations, archival functions, and archival practicum, the introduction of electronic records seems to have enriched (or complicated) the curriculum structure and decision-making process about course offerings. If a traditional records management course is offered, to what extent do we need to cover electronic records as a separate course? How much overlap exists between course offerings of electronic records management, digital preservation, and digital archives? How many course areas are typically covered by archival programs? If no program can offer them all, what would be the optimal combination that would meet the needs of each

program? Further analysis of the combinations of course areas, as described in the following sections, will help address these questions.

ERM Course Area Combination Analysis

To reveal patterns of combinations of course areas and interpret the significance, the study used a systematic arrangement method to match up every single course in all types of arrangements. [Most of the programs that cover ERM courses share the same academic year structure, i.e., the semester system. A small number of programs may offer shorter courses on the quarterly basis.] The five course areas were labeled A (archival foundation courses), B (record management courses), C (electronic records management courses), D (digital preservation courses), and E (digital archives courses). The single letter arrangement (A, B, C, D, and E) counted all courses that are offered alone without any match-up. The two-letter arrangement (AB, AC, AD, and AE) counted all course areas that are offered in combination with the course area A. The three-letter arrangement contained three sets. The AB set (ABC, ABD, and ABE) counted all course areas offered in combination with the course areas A and B. The AC set (ACD, and ACE) counted all course areas offered in combination with the course areas A and C. The AD set (ADE) contained all course areas offered in combination with the course areas A and D. The four-letter arrangement (ABCD and ABCE) counted all course areas offered in combination with the course areas A, B, and C. The five-letter arrangement (ABCDE) counted the instances in which all five course areas were offered together in one program. The course area A was counted in all combinations because archival foundation courses are offered in all programs. The detail of each combination is shown below in the form of table summary and narrative analysis.

Single course area combination (Table 1): Ten programs (10) offered archival foundation courses with no additional courses on RM, ERM, digital preservation, or digital archives. No program (0) offered RM, ERM, digital preservation, or digital archives alone.

The use of single letter combination intended to find how many programs offered each of the course areas alone without paring with any other course areas. In other words, where there any programs that only offered single-area courses without doing any further work in other course areas? The findings show that ten programs offered archival foundation courses without any RM, ERM, digital preservation, or digital archives courses in their programs. This indicates that 1 out of 4 programs (25%) listed on the *SAA Archival Education Directory* either do not cover electronic and digital records in their curricula or they have limited coverage embedded in archival foundation courses. The findings also show that all programs considered archival foundation courses essential to the management of electronic and digital records because RM, ERM, or

Table 1. Single Course Area Combination.

Combination	Definition	Programs
A	Archival foundation only	10
B	RM only	0
C	ERM only	0
D	Digital preservation only	0
E	Digital archives only	0

Table 2. Two Course Area Combination.

Combination	Definition	Programs
AB	Archival foundation + RM	6
AC	Archival foundation + ERM	0
AD	Archival foundation + digital preservation	2
AE	Archival foundation + digital archives	2

digital preservation or archives courses are always offered in combination with archival foundation courses but are never offered alone. However, the analysis does not show the extent to which archival foundation courses contributed to, or supplemented, electronic records and digital archives education. Further analysis is needed to parse the course contents of archival foundation courses to reveal their interrelationships with other course areas. This investigation is beyond the scope of the current study.

Two course area combination (Table 2): Six programs (6) offered RM, two programs (2) offered digital preservation, and two programs (2) offered digital archives, along with archival foundation courses. No program (0) offered the archival foundation-ERM combination.

The two-letter combination shows that a total of ten programs had a two-course sequence in their curricula to incorporate electronic records and digital archives. In addition to archival foundation courses, six programs offered records management, two programs offered digital preservation, and two programs offered digital

archives. The fact that no program offered a specific ERM course in this combination indicates that if a program can only offer one advanced course in this field, they are likely to choose from among the other three course areas. The choice implies that coverage of electronic records may be embedded in courses that address records management, digital preservation, and digital archives issues. This is definitely a step forward from embedding the coverage of electronic records in archival foundation courses. However, it also raises an interesting question: In what circumstances are ERM courses offered and why? This is addressed in the analysis of three- and four-letter combinations in the following paragraphs.

Three course area combination (Table 3): Eight programs offered records management courses and among them, three programs (3) combined RM with ERM, five programs (5) combined RM with digital preservation, and five programs (5) offered ERM along with digital preservation. No program (0) tied RM or ERM or digital preservation with digital archives.

The three-course area combination re-

Table 3. Three Course Area Combination.

Combination	Definition	Programs
ABC	Archival foundation + RM + ERM	3
ABD	Archival foundation + RM + digital preservation	5
ABE	Archival foundation + RM + digital archives	0
ACD	Archival foundation + ERM + digital preservation	5
ACE	Archival foundation + ERM + digital archives	0
ADE	Archival foundation + digital preservation + digital archives	0

Table 4. Four Course Area Combination.

Combination	Definition	Programs
ABCD	Archival foundation + RM + ERM + digital preservation	6
ABCE	Archival foundation + RM + ERM + digital archives	1

veals how RM, ERM, and digital preservation are tied with other course areas if programs offer a three-course area sequence in this field. The findings indicate that if programs offered RM, they are more likely to offer digital preservation rather than ERM as an addition. Combining RM with digital preservation highlights long-term preservation of electronic records, but leaves other electronic records issues to be addressed in a general records management course. Even if programs offered ERM instead of RM, chances are they may still offer digital preservation. The data shows that five programs tie ERM with digital preservation. In other words, more than 10% of archival programs considered that long-term preservation concerns of electronic records should be addressed by a separate course in addition to ERM. It is also interesting to note that no programs in the three course area sequence included digital archives as an option to tie with other three course areas. This indicates that the construction and administration of digital archival repositories have not been incorporated into archival curricula as often as electronic records management and digital preservation.

Four course area combination (Table 4): Six programs (6) offered RM and ERM, along with digital preservation. One program (1) offers RM and ERM, along with digital archives.

The course combination data shows that in a total of seven programs RM and ERM are considered important areas to be cov-

ered by separate courses. The number is quite impressive if we do not count the 10 programs that only covered a single archival foundation course area. In other words, of the 30 programs whose curricula cover RM, ERM, digital preservation, or digital archives course areas, about a quarter of programs chose to offer RM and ERM as separate courses. The data also shows that if a digital course is offered in addition to archival, RM, and ERM course areas, the preference is to offer digital preservation rather than digital archives. The course combination data reveals the consensus that the optimal combination should cover archival foundation, records management, electronic records management, and long-term preservation of electronic records.

Five course area combination (Table 5): No program (0) offered individual courses that cover all five content areas.

The data collected so far shows that no program has offered courses that cover all five course areas. This implies that either very few programs make distinctions between digital preservation and digital archives, or the construction and administration of digital archives is still new in the course curriculum for most archival programs. The course area combination analysis shows that although all programs offered archival foundation courses, the inclusion of the remaining four course areas (RM, ERM, digital preservation, and digital archives) varied from program to program. ERM courses can be offered with or without RM, digital preservation,

Table 5. Five Course Area Combination.

Combination	Definition	Programs
ABCE	Archival foundation + RM + ERM + digital preservation + digital archives	0

or digital archives. The broad range of content areas associated with electronic records made us wonder what ERM courses are like when they are offered in archival programs. What then would be the impact on the ERM course content coverage if related courses are also offered in the program? Would it mean that those topics can be discussed in less detail in ERM courses? What are possible correlations between ERM course topic distribution and related course area combination?

Correlations Between ERM Topic Distributions and Course Combinations

The analysis of topic distribution reported in a previous study provides useful information for the core topical content of ERM courses offered in archival programs in North America. The analysis identified 12 topic groups from the total of 140 weekly topics and their distributions in the 12 ERM course syllabi (Zhang, 2015). Table 6 and Figure 1 display the 12 topic groups (Table 6) and their distribution (Figure 1).

RM and ERM Courses

Of the total 12 ERM syllabi selected for course topic analysis, seven offered RM courses in their archival curricula: 58% of the total programs. With regard to ERM course topics, the total topic coverage by the seven programs that also offered regular RM courses counts for 91 topics: 65% of the total 140 topics. On the other hand, five programs that did not offer RM courses counted for 42% of the total programs, but 35% (49 topics) of the total topics. The analysis suggests that more topics are offered for ERM courses with regular RM course offerings.

Table 7 shows the topic distribution comparison for each of the 12 ERM course topics between programs with and without regular RM courses. The data highlighted in the table suggests that the following course topics are strong in programs with regular RM courses but weak in programs that did not offer RM courses in their archival curricula:

- Business and technology environments (80% vs. 20%)
- Legal, ethical, social, and compliance issues (82% vs. 18%)
- Managing specific types of electronic records (75% vs. 25%)
- System approaches and software solutions (75% vs. 25%)

Topic Distribution by Topic Group
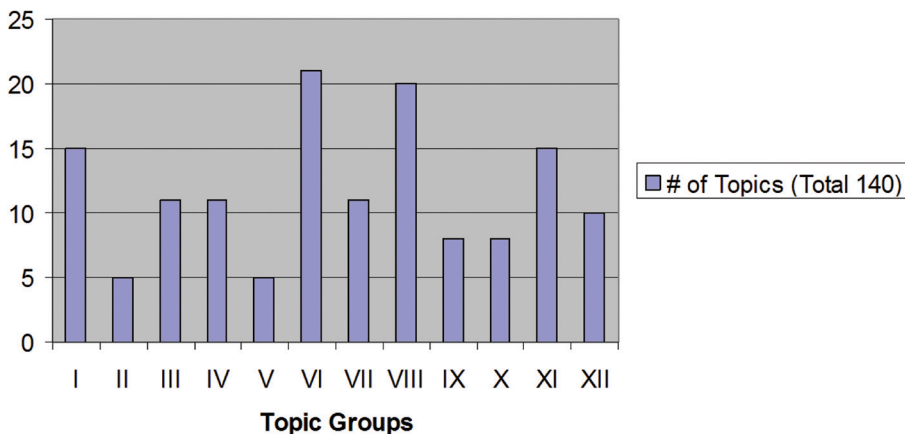
Figure 1. ERM Topic Distribution Chart

Table 6. ERM Topic Distribution Summary.

Topic Group #	Topic Group Title	# of Topics (Total 140)
I	Introduction: overview, key concepts, knowledge and skills	15
II	Business and technology environments	5
III	Requirements, standards, and best practices	11
IV	Legal, ethical, social, and compliance issues	11
V	Electronic records program management	5
VI	Records management processes and techniques	21
VII	Managing electronic records in various environments	11
VIII	Managing specific types of electronic records	20
IX	System approaches and software solutions	8
X	Records access and use	8
XI	Long-term preservation	15
XII	Electronic records and digital archives	10

On the contrary, the following course topics are strong in programs that do not offer RM courses but weak in programs with regular RM courses in their archival curricula:

- Electronic records management programs (60% vs. 40%)
- Records management processes and techniques (52% vs. 48%)

The analysis suggests that topic groups covered by archival programs correlate with course area combinations. If a program offers a regular RM course in addition to an ERM course, it will spend more class hours in the content of the ERM course discussing electronic records environments and specific ERM management issues, but fewer class hours discussing programs and specific records management processes and techniques. On the other hand, if a program does not offer a regular RM course in its curriculum, its ERM course will spend more class hours on records management program, process, and technique foundations so that students will have enough records management knowledge and skills to understand issues relating to the management of electronic records. This indicates that records management foundations covered by a separate RM course will give an ERM course more time to discuss specific electronic records related issues such as business and technology environments in which elec-

Table 7. Topic Distribution and Course Area Combination Comparison (RM vs. ERM).

Topic#	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Total
w/RM (7)	10 67%	4 **80%**	7 64%	9 **82%**	2 40%	10 **48%**	7 67%	15 **75%**	6 **75%**	5 62.5%	9 60%	7 70%	91 65%
w/o RM (5)	5 33%	1 **20%**	4 36%	2 **18%**	3 60%	11 **52%**	4 36%	5 **25%**	2 **25%**	3 37.5%	6 40%	3 30%	49 35%
Total	**15**	**5**	**11**	**11**	**5**	**21**	**11**	**20**	**8**	**8**	**15**	**10**	**140**

Table 8. Topic Distribution/Course Area Combination Comparison (DP vs. ERM).

Topic#	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Total
w/DP (9)	10 66%	5 100%	10 91%	9 82%	4 80%	18 85%	7 63%	11 64%	5 63%	5 63%	10 **67%**	5 50%	101 72%
w/o DP (2)	3 20%	0%	1 9%	2 18%	1 20%	3 14%	2 18%	6 30%	2 25%	0%	4 **27%**	2 20%	26 19%
w/DA (1)	2 13%	0%	0%	0%	0%	0%	2 18%	1 5%	1 12%	3 37%	1 6%	3 30%	13 9%
Total	**15**	**5**	**11**	**11**	**5**	**21**	**11**	**20**	**8**	**8**	**15**	**10**	**140**

tronic records are created and managed; legal, ethical, and social implications; how to manage different types of electronic records; and system analysis and software solutions.

Digital Preservation and ERM Courses

Of the total 12 ERM syllabi selected for course topic analysis, nine offer digital preservation (DP) as separate courses, which stand for 75% of the total programs. With regard to ERM course topics, the topics covered by the nine programs with regular digital preservation course offerings count for 101 topics, 72% of the total 140 topics. On the other hand, two programs without offering digital preservation courses count for 17% of the total programs, but 19% (26 topics) of the total topics. One program offering digital archives (DA) in addition to ERM course counts for 8% of the total program and 9% of the total topics. The analysis suggests that topics offered for each course combination are quite proportional, with slightly higher topic offerings for programs that do not offer digital preservation as regular courses.

Table 8 shows the topic distribution comparison for each of the 12 ERM course topics between programs with and without regular digital preservation courses. The table displays detailed distribution of individual topics for course combinations with or without digital preservation courses. The data shows that total topic distribu-

tion is divided proportionally into 72% (with digital preservation), 19% (without digital preservation), and 9% (with digital archives). For course combinations that include digital preservation courses, the distribution percentage for topic group XI (long-term preservation) is 67% and for topic group XII (electronic records and digital archives) is 50%, both lower than the proportional total 72%. For course combinations that did not include digital preservation courses, the distribution percentages for topic groups XI and XII are 27% and 20% respectively, both higher than the proportional total 19%.

Once again, the analysis suggests a possible correlation between topic groups and course combinations. If digital preservation is offered as a separate course, the program may not invest as many class hours for the similar topic in its ERM course. If the digital preservation course is not offered, the program then uses more time to cover the topic of digital preservation topic in its ERM syllabus. The correlation between ERM topic groups and RM and digital preservation courses highlights the necessity of coordination of content coverage in archival course curricula.

Conclusion

Electronic records management courses are taught in archival studies programs in North America along with archival foundation courses, records management

courses, and digital preservation courses, and digital archives courses. The course combination analysis reveals a clear course combination pattern in ERM course offering, i.e., ERM courses are most commonly taught in three- or four-course combinations, as shown in Table 9.

Among the 15 archival programs listed in the *SAA Directory of Archival Education* (2013) that offered ERM courses in their curricula, three offered ERM with RM, five offered ERM with digital preservation, six offered ERM with RM and digital preservation, and one offered ERM with RM and digital archives. Obviously, ERM courses are more likely to be taught with digital preservation (11 out of 15) and/or with RM (10 out of 15). In other words, the preferable course combination should cover archival foundation, electronic records management, records management and/or digital preservation. Archival educators can use this finding as a reference guide for their archival curriculum design and review.

As records management and digital preservation are two major course areas taught with electronic records management in archival course syllabi, attention should be paid to the course topic coverage of ERM courses. As indicated in the correlation analysis, including RM in the course combination will reduce the class hours spent on records management foundation knowledge and techniques in ERM courses. Similarly, including digital preservation will reduce the class hours dedicated to long-term preservation of electronic records in ERM courses. If both RM and digital preservation are offered

in the course combination, ERM courses will have more time to cover ERM specific topics. Archival educators can adjust the content of those courses accordingly so that optimal educational goals can be reached through a comprehensive and balanced curriculum and course design.

The analysis of course combinations and its interrelations with ERM course content, as reported in this study, provides a unique perspective on the structures of the archival curriculum and the level of its integration of electronic and digital records into archival education. The findings of this study highlight the role of electronic records in developing an integrated archival curriculum. Due to the scope and extent of issues associated with electronic records, what content to cover in an ERM course very much depends on how the course is structured in archival curricula. A general discussion of electronic records related issues can be covered in archival foundation and records management courses. However, a more extensive exploration of the subject requires not only an individual ERM course, but also courses that cover extended areas such as digital preservation and digital archives. This in-depth analysis of ERM education will help to develop a systematic, comprehensive, and holistic understanding of archival curriculum structure. As records continue to become electronic and digital, a full and comprehensive archival curriculum in the future relies on how we understand the role that electronic and digital records play in archival education, and decisions we make to incorporate them into the archival curriculum.

Table 9. ERM Course Combinations by Programs.

ERM Course Combinations	# of Offerings
Archival foundation + RM + ERM	3
Archival foundation + ERM + digital preservation	5
Archival foundation + RM + ERM + digital preservation	6
Archival foundation + RM + ERM + digital archives	1

References

Bastian, J. A., & Yakel, E. (2006). Towards the development of an archival core curriculum: The United States and Canada. *Archival Science, 6*, 133–150. http://dx.doi.org.proxycu.wrlc.org/10.1007/s10502-006-9024-4

Condon, P. B. (2014). Digital curation through the lens of disciplinarity: The development of an emerging field (Doctoral dissertation). Retrieved from PQDT Open: http://pqdtopen.proquest.com/search.html

Cox, R. J. (1994). *The first generation of electronic records archivists in the United States: A study in professionalization.* New York: Haworth.

Eastwood, T. (1996). Reforming the archival curriculum to meet contemporary needs. *Archivaria, 42*, 80–88. Retrieved from http://journals.sfu.ca/archivar/index.php/archivaria/article/view/12156/13163

Gilliland-Swetland, J. A. (1993). *From education to application and back: Archival literature and an electronic records curriculum. American Archivist, 56*(3), 532–544. http://americanarchivist.org/doi/pdf/10.17723/aarc.56.3.p68m0nhwk359m25u

Gilliland-Swetland, J. A. (2000). Enduring paradigm, new opportunities: The value of the archival perspective in the digital environment. *Council on Library and Information Resources.* Retrieved from http://www.clir.org/pubs/reports/pub89/pub89.pdf

Hedstrom, M. (1993). Teaching archivists about electronic records and automated techniques: A needs assessment. American Archivist, 56(3), 424–433. http://americanarchivist.org/doi/pdf/10.17723/aarc.56.3.b568x1566m27406l

Lee, C. A., & Tibbo, H. (2011). Where's the archivist in digital curation? Exploring the possibilities through a matrix of knowledge and skills. *Archivaria, 72*, 123–168. Retrieved from http://journals.sfu.ca/archivar/index.php/archivaria/article/view/13362/14668

Pearce-Moses, R., & Davis, S. (2008). New skills for a digital era. Chicago IL: Society of American Archivists. Retrieved from http://www.archivists.org/publications/proceedings/NewSkillsForADigitalEra.pdf

Society of American Archivists (SAA). *Directory of Archival Education.* Retrieved December 28, 2013 from http://www2.archivists.org/dae

Zhang, J. (2015). Electronic records management: A course content analysis. *The Society of American Archivists 2014 Research Forum Peer Reviewed Research Papers.* Retrieved from http://files.archivists.org/pubs/proceedings/ResearchForum/2014/papers/Zhang-ResearchForumPaper2014.pdf