

Author(s): Paul Conway, 2008-2010.

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University of Michigan
School of Information

SI 678 Preserving Sound and Motion

SYLLABUS

Term:	Winter 2010 (2)
Meeting Time:	Fridays, 8:30 am to 11:30 am
Location:	409 West Hall
Website:	https://ctools.umich.edu/portal
Credits:	1.5

Course Description

Through reading/discussion and lecture, the course examines and evaluates standards for media preservation and reproduction—focusing particularly on digital processes. The course provides a high level overview of specific standards relating to state of the art storage of specialized recording media, as well as care and handling techniques. The heart of the course is an examination of re-recording standards and restoration techniques for sound and motion picture media, with a special emphasis on magnetic to digital re-recording and film restoration. The final segment of the course moves beyond media preservation to consider other preservation challenges, including using preservation metadata schemes, working with vended services, and managing preservation projects. Throughout the course, case studies of specific projects focus on the ethical issues embedded within a variety of technical and aesthetic decisions facing the preservation specialist. In addition the course addresses a range of important preservation issues, such as the identification of the original versus subsequent and multiple versions; the theoretical and practical distinctions between preservation strategies; and the relationship of digital technologies to traditional preservation practices.

Learning Objectives

- Recognize and articulate the preservation concerns associated with major types of moving image and sound recording media and technologies;
- Recognize and articulate care and handling procedures for different moving image and sound recording formats;
- Describe the current state of standards and best practices governing and influencing the transfer of sound and motion from analog to digital media, including metadata issues;

- Evaluate the decisions made in preservation work in terms of meeting standards for visual and aural quality, and maintaining the authenticity and integrity of a work.

Original Work

Unless otherwise specified in an assignment, all submitted work must be your own, original work. Any excerpts from the work of others must be clearly identified as a quotation, and a proper citation provided. Any violation of the School's policy on Academic and Professional Integrity (stated in the Master's and Doctoral Student Handbooks) will result in severe penalties, which might range from failing an assignment, to failing a course, to being expelled from the program, at the discretion of the instructor and the Associate Dean for Academic Affairs.

Accommodations for Students with Disabilities

If you think you need an accommodation for a disability, please let me know at your earliest convenience. Some aspects of this course, the assignments, the in-class activities, and the way we teach may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Office of Services for Students with Disabilities (SSD) to help us determine appropriate accommodations. SSD (734-763-3000; <http://www.umich.edu/sswd/>) typically recommends accommodations through a Verifie Individualized Services and Accommodations (VISA) form. I will treat any information you provide as private and confidential.

Course Outline

Introduction

- A: Course themes and preservation context
- B: Ethics and dilemmas

Media and Environments

- A: Media stability and deterioration
- B: environmental control standards
- C: Care and handling guidelines

Sound Preservation

- A: Preservation Re-recording
- B: Standards and processes

Motion Preservation

- A: Preservation and restoration
- B: Technology trends
- C: Evolving standards and best practices

Metadata Issues and Project Planning

- A: Metadata for preservation and access
- B: Vendor relations, project management
- C: Outsourcing and project costs

Reading and Viewing

- Required Readings: All required readings and many of the optional readings, unless otherwise noted, are posted on the CTools site for the course. Some audiovisual items may be on reserve in the Shapiro Library Media Library.
- *Optional Purchase: The Film Preservation Guide: The Basics for Archives, Libraries, and Museums.* San Francisco: National Film Preservation Foundation, 2004. \$8.00. Available free online from: <http://www.filmpreservation.org/>

Grading

▪ Class participation	20%
▪ Audio Preservation Statement of Work	25%
▪ Sound or Motion Project Review	25%
▪ Final examination	30%

Teamwork on Assignments

Team-based projects can be challenging for students who do not have real-world experience working collaboratively on a project. In audiovisual preservation work, people rarely work alone, even in very small programs. Teams may involve subject specialists, archivists, engineers, consultants, and sometimes vendor representatives. The success of the assignment in part depends upon a working division of labor that helps ensure that everyone contributes fairly to the project. Success also depends upon regular communication within the team and the establishment of and adherence to meaningful deadlines.

Grading Policy for Team Assignments

Grading is determined solely by the quality of the reports submitted for each assignment. The default approach to grading is the assignment of the same grade to each member of the team for a given assignment. In putting your name on the report, you are certifying that you contributed fairly to the project and that all three members of the team are satisfied with the report and individual contributions to the project. Alternatively, a team of students may choose to label the components of the report with the name(s) of the principal author(s). All members of the team must agree with this strategy. The instructor will weigh the various contributions to a single report and consider assigning differential grades if the quantity and quality of work appears to vary to a large degree. The default will be identical grades for the report, even if the author(s) are named. In very rare circumstances where disagreement exists within the team on the level and quality of effort, the instructor will referee the disagreement and assign final assignment grades accordingly.

Readings

Week 1: Introduction to course themes and the context of preservation

Required

Edmondson, Ray. *Audiovisual Archiving: Philosophy and Principles*. Paris: UNESCO, 2004.
<http://unesdoc.unesco.org/images/0013/001364/136477e.pdf>

Gracy, Karen F. *Film Preservation: Competing Definitions of Value, Use, and Practice*. Chicago: SAA, 2007. Chapter 7, "Definition of Preservation," pp. 141-168.

Read, Paul and Mark-Paul Meyer, eds. Ch. 10, "Principles of film restoration and film reconstruction," pp. 69-79, in *Restoration of Motion Picture Film*. Butterworth-Heinemann, 2000.

Schüller, Dietrich. "Ethics of Preservation, Restoration, and Reissue of Historical Sound Recordings." *Journal of the Audio Engineering Society* 31.12 (1991): 1014-16.

Optional

Bazin, Andre, "The Ontology of the Photographic Image," *What is Cinema? Essays selected and translated by Hugh Gray*. Berkeley: University of California Press, 1967, pp. 6-16.

Baudrillard, Jean, "The System of Collection." In John Elsner and Roger Cardinal, eds., *Cultures of Collecting*, pp. 7-24. London: Reaktion, 1994, translated by Roger Cardinal.

Buckland, Michel, "What is a Document?" *Journal of the American Society for Information Science* 48 (9) 1997: 804-809.

Crimp, Douglas, "The museum's old, the library's new subject," *On the Museum's Ruins*. Cambridge: MIT Press, 1993, pp. 66-81.

Harrison, Helen P. "Conservation and Preservation of Audiovisual Materials: Realistic or a Dream?" *IFLA Journal* 18 (1992): 211-222.

Week 2: Media and Environments

Required

Adelstein, Peter Z. *IPI Media Storage Quick Reference*. Rochester: Image Permanence Institute, 2004. http://www.imagepermanenceinstitute.org/shtml_sub/msgr.pdf

Bigourdan, Jean-Louis, "From the Nitrate Experience to New Preservation Strategies," In *This Film is Dangerous*, ed. Roger Smither. Bruxelles, Belgium: International Federation of Film Archives, 2002, pp. 52-73.

Bigourdan, Jean-Louis, James M. Reilly, Karen Santoro and Gene Salesin. *The Preservation of Magnetic Tape Collections: A Perspective*. Rochester: Image Permanence Institute, 2006.
http://www.imagepermanenceinstitute.org/shtml_sub/NEHTapeFinalReport.pdf

Dalrymple, Helen, "Film & Sound Treasures in the Mountain Lair: Audiovisual Conservation Center Takes Shape in Culpeper," *Library of Congress Information Bulletin* 65 (August 2006): 167-71. <http://www.loc.gov/loc/lcib/06078/navcc.html> See also: Library of Congress. National Audio-Visual Conservation Center. [The Packard Campus]. Culpeper, VA.
<http://www.loc.gov/avconservation/packard/>

Library of Congress. *Cylinder, Disc and Tape Care in a Nutshell*. Washington, DC: Library of Congress, 2002. <http://lcweb.loc.gov/preserv/care/record.html>

Reilly, James. *IPI Storage Guide for Acetate Film*. Rochester, NY: Image Permanence Institute, 1993. http://www.imagepermanenceinstitute.org/shtml_sub/dl_pubdownloads.asp

"Understanding Film and How It Decays," *Film Preservation Guide*, San Francisco: *The Film Preservation Foundation*, 2004, pp. 6-18.
http://www.filmpreservation.org/preservation/film_guide.html

Optional

Byers, Fred R. *Care and Handling of CDs and DVDs: A Guide for Librarians and Archivists*. October 2003. <http://www.clir.org/PUBS/reports/pub121/contents.html>

Library of Congress. *Caring for your Collections*. <http://www.loc.gov/preserv/careothr.html>

Reilly, James M., Douglas Nishimura, Edward Zinn, *New Tools for Preservation: Assessing Long-Term Environmental Effects on Library and Archives Collections*. Washington, DC: Council on Library and Information Resources, 1995. <http://www.clir.org/pubs/abstract/pub59.html>

Slide, Anthony. *Nitrate Won't Wait: A History of Film Preservation in the United States*. Jefferson, NC: McFarland, 1992.

Smith, Leslie. "Factors Governing the Long-Term Stability of Polyester-Based Recording Media." *Restaurator* 12 (1991): 201-18.

Standard ECMA-379. Test Method for the Estimation of Archival Lifetime of Optical Media. 1st edition, June 2007. Geneva: Ecma International. <http://www.ecma-international.org/publications/standards/Ecma-379.htm>

St. Laurent, Gilles. *The Care and Handling of Recorded Sound Materials*. Washington, D.C.: Commission on Preservation and Access, 1991. <http://palimpsest.stanford.edu/byauth/st-laurent/care.html>

Van Bogart, John. *Magnetic Tape Storage and Handling: A Guide for Libraries and Archives*. Washington, DC: Commission on Preservation and Access; St. Paul, MN: National Media Laboratory, 1995. <http://www.clir.org/pubs/reports/pub54/index.html>

Week 3: Sound – Analog to Digital

Required

Fleischhauer, Carl. "The Library of Congress Digital Audio Preservation Prototyping Project." Paper presented at Sound Savings: Preserving Audio Collections, a conference of the Association of Research Libraries, June 24-26, 2003. http://www.arl.org/preserv/sound_savings_proceedings/Digital_audio.shtml

Payton, Christopher Ann, "Preservation Re-Recording of Audio Recordings in Archives: Problems, Priorities, Technologies, and Recommendations." *American Archivist* 61 (1998): 188-219.

Sterne, Jonathan. *The Audible Past: Cultural Origins of Sound Reproduction*. Durham: Duke University Press, 2003. Ch. 6.

Welch, Walter L. "Preservation and Restoration of Authenticity in Sound Recordings." *Library Trends* 21 (1972): 83-100.

Optional

Brylawski, Samuel. "Preservation of Digitally Recorded Sound." *Building a National Strategy for Preservation: Issues in Digital Media Archiving*. Washington, DC: Council on Library and Information Resources, 2002. Available: <http://www.clir.org/pubs/reports/pub106/sound.html>

Cohen, Elizabeth. "Preservation of Audio." *Folk Heritage Collections in Crisis*. Washington, DC: Council on Library and Information Resources, 2001. <http://www.clir.org/pubs/reports/pub96/contents.html>

Week 4: Sound – Re-recording Standards

Required

Capturing Analog Sound for Digital Preservation: Report of a Roundtable Discussion of Best Practices for Transferring Analog Discs and Tapes. Washington, DC: Council on Library and Information Resources, 2006. <http://www.clir.org/pubs/abstract/pub137abst.html>

Casey, Mike and Bruce Gordon. *Sound Directions: Best Practices for Audio Preservation.* Bloomington, IN: Indiana University, 2007. Chapters 1-3, pp. 1-59. <http://www.dlib.indiana.edu/projects/sounddirections/papersPresent/index.shtml>

European Broadcasting Union, "EBU Technical Recommendation R85 – 2004: Use of the Broadcast Wave Format for the Exchange of Audio Data Files," (Geneva: Switzerland: European Broadcast Union, 1997, revised 2004), http://www.ebu.ch/CMSImages/en/tec_text_r085-2004_tcm6-12771.pdf.

International Association of Sound and Audiovisual Archives (IASA). *TC-04 - Guidelines on the Production and Preservation of Digital Audio Objects.* (2004) http://www.iasa-web.org/pages/06pubs_03_new.htm.

Week 5: Motion – Restoration Challenges

Required

Besser, Howard, "Digital Preservation of Moving Image Material? *The Moving Image*, Fall 2001, 39-55. <http://www.gseis.ucla.edu/~howard/Papers/amia-longevity.html>

Busche, Andreas, "Just Another Form of Ideology? Ethical and methodological Principles in Film Restoration," *The Moving Image* 6 (Fall 2006): 2-29.

Carroll, Nathan. "Unwrapping Archives: DVD Restoration Demonstrations and the Marketing of Authenticity," *The Velvet Light Trap* 56 (Fall 2005): 18-31.

The Film Preservation Guide: The Basics for Archives, Libraries, and Museums. San Francisco: National Film Preservation Foundation, 2004. Chapters 5 and 7. pp. 41-58; 70-77.

Gracy, Karen F., *Film Preservation: Competing Definitions of Value, Use, and Practice.* Chicago: Society of American Archivists, 2007, chapter 8, pp. 169-202.

Mazzanti, Nicola & Paul Read, "Film Archives on the Threshold of a Digital Era: Highlights for the FIRST Project's Final Report." JTS 2004 Joint Technical Symposium.

Messier, Paul, "Assessing Digital Video as a Preservation Medium," *PlayBack: Bay Area Video Coalition*, 2003.

Optional

Baker, Nicholson. *The Size of Thoughts*. New York: Random House, 1996. pp. 36-50 "The Projector."

Baron, Jaimie, "Contemporary Documentary Film and 'Archive Fever': History, the Fragment, the Joke," *The Velvet Light Trap* 60 (Fall 2007): 13-24.

European Film Heritage on the Threshold of the Digital Era: The FIRST Project's Final Report, June 1, 2004. Gracy, Karen F., "Documenting the Process of Film Preservation. *The Moving Image* 3 (Fall 2003): 1-41. HTML version online has figures in JPEG format.

Winston, Brian. *Technologies of Seeing: Photography, Cinematography & Television*. London: BFI, 1996. Introduction, Ch. 1-3 (pp. 1-87).

Week 6: Motion – Processes and Digital Cinema

Wallmuller, Julia, "Criteria for the Use of Digital Technology in Moving Image Restoration," *The Moving Image* 7 (Spring 2007): 78-91.

McGreevey, Tom and Joanne Yeck, "How Films are Preserved and Restored," in *Our Movie Heritage*. New Brunswick: Rutgers University Press, 1997.

Acland, Charles, R. "Tampering with the Inventory: Colorization and Popular Histories," *Wide Angle* 12 (April 1990).

Wasko, Janet. *Hollywood in the Information Age*. Austin, TX: University of Texas Press, 1995. Ch. 1-4, pp. 1-69.

James, Jack, *Digital intermediates for film and video*. Boston: Elsevier, 2006.

McKernan, Brian, *Digital cinema: the revolution in cinematography, post-production, and distribution*. New York: McGraw-Hill, 2005.

Week 7: Metadata and Project Management*Required*

Association of Cinema and Video Laboratories. *Recommended Procedures for Motion Picture and Video Laboratory Services*. 5th ed. http://www.acvl.org/acvl_manual/index.html

"Audio/Video Capture and Management," in *The NINCH Guide to Good Practice in the Digital Representation and Management of Cultural Heritage Materials*. 2003.

<http://www.nyu.edu/its/humanities/ninchguide/index.html>

Casey, Mike and Bruce Gordon. *Sound Directions: Best Practices for Audio Preservation*. Bloomington, IN: Indiana University, 2007. Chapters 7-8, pp. 113-158.

<http://www.dlib.indiana.edu/projects/sounddirections/papersPresent/index.shtml>

Harrison, Harriet W. "The Special Problems of Cataloguing Moving Images in an Archive." *Audiovisual Archives: A Practical Reader*. Paris: UNESCO, 1997.

http://unesdoc.unesco.org/images/0010/001096/109612eo.pdf#xml=http://unesdoc.unesco.org/ulis/cgi-bin/ulis.pl?database=ged&set=3943ED2F_0_145&hits_rec=3&hits_lng=eng (pp 184-191).

Wactlar, Howard D. and Michael G. Christel, "Digital Video Archives: Managing Through Metadata," in *Building a National Strategy for Preservation: Issues in Digital Media Archiving*. Washington, DC: Council on Library and Information Resources, 2002.

<http://www.clir.org/pubs/abstract/pub106abst.html>

Optional

Bekaert, Jeroen, Emiel De Kooning, and Herbert van de Sompel, "Representing digital assets using MPEG-21 Digital Item Declaration," *International Journal on Digital Libraries* 6 (April 2006): 159-173. <http://www.springerlink.com>

Guenther, Rebecca and Zhiwu Xie, *Implementing PREMIS in Container Formats*. Paper presented at Archiving 2007, 21-24 May 2007, Arlington, VA.

<http://www.loc.gov/standards/premis/IST-premis-containers.pdf>

Assignments

Pre-course Preparation

1. Prior to the first session of class (26 February 2010), read the following publication, which provides a handy overview of audiovisual preservation issues.

Edmondson, Ray. *Audiovisual Archiving: Philosophy and Principles*. Paris: UNESCO, 2004.
<http://unesdoc.unesco.org/images/0013/001364/136477e.pdf>

2. Prior to the first session of class (26 February 2010), complete the following assignment and come to the first class prepared to discuss what you have learned. The purpose of the first assignment (which counts toward your “class participation” score) is to begin getting familiar with the available resources on the preservation of sound and motion. Choose one of the six websites listed below. Examine the site closely in term of its organization and structure. Come prepared to discuss the strengths and weaknesses of each site as a portal to the preservation of sound and motion. Pay particular attention to the extent to which the site contains documentation on standards, guidelines, and best practices for:

- Media stability;
- Care & handling of media;
- Re-recording and restoration;
- Creation of appropriate metadata; and
- Management of preservation and access projects.

Conservation OnLine (CoOL)

1. Conservation Topics: Audio Preservation: [materials]
<http://cool.conservation-us.org/bytopic/audio/>
2. Electronic Storage Media:
<http://cool.conservation-us.org/bytopic/electronic-records/electronic-storage-media/>
3. Video preservation:
<http://cool.conservation-us.org/bytopic/video/>
4. Motion Picture Film:
<http://cool.conservation-us.org/bytopic/motion-pictures/>

PADI Preserving Access to Digital Information – Formats and Media

5. Audio and Audiovisual material :
<http://www.nla.gov.au/padi/topics/48.html>
6. Physical format digital material :
<http://www.nla.gov.au/padi/topics/52.html>

Class Participation (20%)

Active participation in class sessions is critical to the success of the course. Top-level class participation is defined as:

- Thorough preparation for each class session by reading and thinking about the assigned readings – reading beyond the required readings to answer questions or satisfy curiosity
- Coming to class with questions about the issues raised by the readings and the topic of the class session
- Contributing to class discussion through the reference to specific readings either assigned or consulted
- Completion of specific preparation assignments, as appropriate

At the first class session, students will have the opportunity to choose one of the weeks of the course during which they will provide particularly active commentary and insight into the topic of the week and the associated readings. The extent to which students exercise participatory leadership during their chosen week will factor into the grade for this assignment.

Sound or Motion Project Evaluation (25%)

Goal

The purpose of this assignment is to explore the extent to which grant funded projects are advancing our collective development of standards and best practices for the preservation, digitization, and access of audiovisual and motion picture collections in cultural heritage organization. Students will work in teams of three individuals. Each team will gather information and report on the outcomes of one project funded by the National Endowment for the Humanities' Division of Preservation and Access between 1999 and 2009. The project must involve the preservation and/or digitization of audiovisual materials whose original sources obsolete audio formats (e.g., 78 rpm disks), magnetic tape, video tape, or motion picture film. No still photograph projects, please.

Steps in the Process

The introductory source of information on NEH funded grants is at the following URL: <http://www.neh.gov/news/recentawards.html>. Each team will identify between 1 and 3 prospective projects, do some preliminary inquiries to determine the feasibility of proceeding, and decide on a single project for further investigation.

Team members will obtain as much information on the project and its outcomes as possible from whatever sources they can identify. Information may take the form of published articles, newsletter articles, press releases, web sites, and web-published gray literature. It is acceptable

to contact project director and ask for specific information, to interview directors to obtain information not readily available in published form, or to probe for specific insights

Team members may divide the labor however they wish. We will discuss in class strategies for team collaboration.

Deliverable

The team will prepare a report of between 7 and 12 single-spaced pages that reports on the findings of the investigation. The report will, at minimum, discuss the following points:

- Scope of the project – including web site where appropriate
- Value and significance of the collection preserved
- Selection processes
- Standards used or developed for preservation, digitization, and access. This is the most important component of the project.
- Metadata schema for access
- Intellectual property matters
- Tools or documents produced
- Status of the project and its outcomes, as of Winter 2010.
- Contact information for further information
- Bibliography of sources and people consulted

Timing

- February 26: teams formed
- March 12: project identified
- March 26: quick status report from teams
- April 2: reports due

Audio Preservation – Statement of Work (25%)

Goal

The purpose of the assignment is to assemble and evaluate the information needed to design a digital transfer project for a collection of sound recordings stored on magnetic media. The preservation project may involve preservation activities undertaken by staff resources in a cultural heritage organization or contracted to third party vendors. The project is the kind of background work that is necessary to write a grant or foundation proposal. This project focuses on audio-based resources because the standards for taking preservation action are more fully developed than those for motion pictures, and there is a greater availability of affordable services provided by third-party vendors.

Background Sources

National Recording Preservation Board (of the Library of Congress).

“Sound Recording Archives Links”

<http://www.loc.gov/rr/record/nrpb/nrpb-archives.html>

Colorado Digitization Program. *CDP Digital Audio Working Group: Digital Audio Best Practices*, Version 2.1, October 2006, Appendix 1: Questions to Ask Before Beginning a Digital Audio Project, pp. 46-50. <http://www.bcr.org/dps/cdp/best/digital-audio-bp.pdf>

International Association of Sound and Audiovisual Archives (IASA).

TC-04 - Guidelines on the Production and Preservation of Digital Audio Objects. (2004)

http://www.iasa-web.org/pages/06pubs_03_new.htm.

Indiana University Sound Directions.

Casey, Mike and Bruce Gordon. *Sound Directions: Best Practices for Audio Preservation*. Bloomington, IN: Indiana University, 2007. Chapter 3, pp. 33 -59.

<http://www.dlib.indiana.edu/projects/sounddirections/papersPresent/index.shtml>

Procedures

Students will work in teams of three individuals. Each team will gather information, provide an interim report on the collection chosen for preservation, and submit a final report.

Step 1. Identify a collection for analog to digital transfer.

Browse and search in the websites of audio archives collections listed by the Library of Congress’s National Recording Preservation Board (see above). Identify at least three collections that are described in sufficient detail that you can determine the scope of the collection and the media upon which it is recorded. Look more closely at what you have identified and choose one collection for digital re-rerecording. One benefit of this step is insight into how difficult it might be to find openly available information on collections and preservation issues.

Step 2. Conduct background research on the chosen collection and its media.

Learn as much as you need to learn about the collection and its creation as necessary to estimate its value and uses if made digitally available. Using a variety of resources, research the likely or actual physical condition of the collection. If appropriate, contact the curator or holding organization for more information.

Step 3. Establish the preservation need.

Based on what you learn about the age of the collection, its storage media, and other appropriate factors (possibly including past storage), estimate the scope of the preservation need. Use resources on media degradation and preservation that we discussed in the first week

of class. It may be necessary to “make some of this information up,” in order to make a compelling case for digital transfer.

Step 4. Specify conversion goals and outcomes.

Settle the scope of the project, the collaborating partners, if any, and the value to be added to the collection by completing a preservation re-recording project. This part of the assignment can be completely fabricated, but you need to base your assertions about outcome on the literature on audio preservation.

Step 5. Outline instructions for the re-recording process.

Specify the major steps in the re-recording project, beginning with the choice of recordings and ending with the storage of the digital masters. Adapt guidelines and guidance for digitization projects contained in the resources listed above (CDP and Sound Directions) or other appropriate resources. The instructor is available to consult on the relevance of various guidelines and best practices. Part of the interesting challenge of this assignment is to identify a good model for a statement of work where no perfect example exists.

Deliverable

Each team will produce a written report that: (1) describes the collection to be preserved, including its scope, content, and preservation problems; (2) outlines a plan of work for resolving the preservation problems; and (3) specifies the appropriate standards and best practices that must be utilized by either a third-party vendor or an in-house digitization service.

There is no outside limit on the length of the report, but it is likely that a well done statement of work will require a minimum of 3,000 words. I prefer reports to be submitted single-spaced in either MS Word or PDF format. Be sure to lay out the report for ease of reading and assessment.

Timing

- **March 12:** Form project team. Three students per team. Little or no overlap with other team project. One of the three team members should serve as a reporter for purposes of submitting reports to CTools or the instructor.
- **March 17:** Report on audio collection that serves as project focus. Send email with name of collection, name of repository, and a very brief (10 to 30 words) description of the scope [_____](#)
- **April 11 (Sunday):** Team report due in CTools.

Final Examination (30%)

A final examination will be administered the week following the final scheduled class. The examination will be posted as an MS word document on the course CTools site. Students may

complete the examination anyplace they choose (in a UM classroom, at home using a laptop, at ERC, etc., or in a campus computing lab). The exam will be “open book” in that any of the resources available during the course may be used in completing the exam questions. The exam must be completed in a four-hour time period, on the honors system.

The final examination will cover all aspects of the course, including required reading for the class sessions, presentations made in class, and discussion in class. A special focus of the examination will be on the complexities of motion picture restoration. The form of the exam questions is a mix of short answer questions and longer essays. The exam document provides explicit directions on answering the individual questions, but in all cases, reference to readings, presentations, or explicit class discussion will be required.