MOVING IMAGE ARCHIVING & PRESERVATION PROGRAM
DIGITAL PRESERVATION, H72.1807

Version 5: 9/11/08

Fall 2008 - Wednesdays, 12:30 pm – 4:30 pm
(please note classes are not necessarily every other week. See schedule for details.)

665 Broadway, Room 643

Instructor: Chris Lacinak: chris@avpreserve.com; 917-548-8632

Goals

Expectations

Housekeeping Must Read

Assignments and Grading

Class 1: Wednesday, September 3 – Introduction, Technology History; OAIS and Digital Preservation Principles.

Class 2: Wednesday, September 17 – Still Image Digitization; AV Digitization Theory; File Formats

Class 3: Wednesday, September 24 (Assignment Plan Due) – AV Digitization Practice

Class 4: Wednesday, October 8 – Digital Workflows; Preservation Lifecycle; Digital Rights Management

Class 5: Wednesday, October 29 – Practical Work with Digital Files; Repository Metadata; Repository System Landscape

Class 6: Wednesday, November 5 (Assignment Due) - Storage media types, architectures and structures; Trusted Digital Repositories; Digital Calculations; Repository Economic Sustainability

Class 7: Wednesday, December 3 - Digital Asset Management

Class 8: Wednesday, December 10 – Migration; Obsolescence monitoring; Discussion of Assignments; Wrap-up

Plagiarism Advisory

GOALS:

This class will focus on the entire digital preservation lifecycle of moving image and sound content. We will begin with digitization and born digital objects, continuing on to storage and asset management systems, and through migration and reformatting. Current theories and practices for digital preservation will be explored through readings and lectures. Students will gain practical skills required in the emerging role of the moving image and sound archivist. These skills include identification, working with metadata, data integrity practices, reviewing and interpreting digital objects and their content. Emphasis will be placed on the role of the moving image and sound archivist in fulfilling their charge of digital preservation.

EXPECTATIONS:

A blackboard site will be available for this course. Students will be expected to check in on the site several times a week for updates and participation. Students are encouraged to pass along resources for the benefit of the class.

Attendance and participation in all classes is expected. Please speak to me about all absences in advance of the absence; one unexcused absence will substantially affect your grade as the classes are doubled up into 4-hour blocks. Each class will include at least one 20-minute break.

Please note that all written work must utilize proper citations, including proper web citations. Works that do not include complete citations will be returned for revision and considered late. Also, please read the Plagiarism Advisory at the end of the syllabus.

Work that is handed in late will be subject to a reduction in grade, affecting your overall grade.

HOUSE KEEPING

MIAP Digital Archive: All course papers/projects must be submitted to me in electronic form, following the format and file naming protocol described in "Digital Archive Protocol Revision 2_4.rtf". The materials will be made part of the MIAP digital archive in a private space for faculty use, and on the MIAP web site.

Texts: It is not necessary to purchase books for the course – Most are on the web; articles will be put on reserve in the Bobst Library as needed. Please note: Some readings may have been assigned in other classes in the Moving Image Archiving and Preservation Program; however, some repetition is necessary to create a context. It is expected that you will review these readings before class time to re-familiarize themselves with the concepts.

Access to Computer Labs: Please see http://www.nyu.edu/its/labs/ for locations and descriptions of NYU's computer labs as needed to work on your computer-related assignments.

Cell phones: Turn completely off during class.

ASSIGNMENTS AND GRADING:

Each student will do one assignment as described below. Grades will be based on a combination of class preparedness, participation in class and on blackboard (70%); and one assignment (30%).

- Assignment: This assignment will break the class into 4 groups of 2 to conduct interviews with multiple organizations focusing on different points of the digital preservation lifecycle. Each group will work with a minimum of 3 organizations to examine which choices were made by each organization and why. You will document the choices of each organization and explain why these choices were made. You will then compare and contrast the three organization's decisions, analyzing and commenting on their choices.
    - o Group 1 will focus on digitization equipment used in the reformatting or capturing of digitized and born digital content. This group should speak with 2 organizations producing born digital content and 2 organizations performing reformatting work.

    - o Group 2 will focus on file format choices such as wrapper/format, codec, resolution, file metadata for the preservation and access copies being used in organizations.

    - o Group 3 will focus on storage architectures including media types, interfaces, networking, software, storage management solutions, backup solutions.

    - o Group 4 will focus on asset management solutions including a look at the organization's needs and requirements, shopping process, likes and dislikes, etc…

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Class 1: Wednesday, September 3 (top)

Due this class
Read the following:
- Cornell University Library Research Department. "Setting the Stage: Introduction" in Digital Preservation Management: Implementing Short-term Strategies for Long-term Problems. Accessed 8/19/08 at
http://www.library.cornell.edu/iris/tutorial/dpm/timeline/index.html

- Cornell University Library Research Department. Sections Titled: "Obsolescence and Physical Threats" & "Terms & Concepts"->"Strategies" in Digital Preservation Management: Implementing Short-term Strategies for Long-term Problems. Accessed 8/19/08 at
http://www.icpsr.umich.edu/dpm/dpm-eng/oldmedia/index.html
http://www.icpsr.umich.edu/dpm/dpm-eng/terminology/strategies.html

- Arms, Caroline R. and Carl Fleischhauer. "Sustainability Factors" in Sustainability of Digital Formats: Planning for Library for Congress Collections. Accessed 8/19/08 at
http://www.digitalpreservation.gov/formats/index.shtml

- Edmondson, Ray. "Preservation: exploring nature and concept" in Audiovisual Archiving: Philosophy and Principles. Paris: UNESCO. 2004. Accessed 8/19/08 at

http://portal.unesco.org/ci/ev.php?URL_ID=15592&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1086101143

- Besser, Howard. "Digital Longevity" in Handbook for Digital Projects: A Management Tool for Preservation and Access. (Ed.) Maxine Sitts. Andover, MA: National Document Conservation Center. Accessed 8/19/08 at http://www.gseis.ucla.edu/%7Ehoward/Papers/sfs-longevity.html

- Waters, Donald and John Garrett. Preserving Digital Information, Report on the Task Force of Archiving of Digital Information. Washington, DC: Council on Library and Information Services. 1996. Accessed 8/19/08 at http://www.clir.org/pubs/abstract/pub63.html

- Definition of digital preservation Accessed 8/14/08 at http://www.ala.org/ala/alcts/newslinks/digipres/PARSdigdef0408.pdf

- 13 Ways of Looking at Digital Preservation: Accessed 08/19/08 at http://www.dlib.org/dlib/july04/lavoie/07lavoie.html

  Resources for further study of computer history:
- Charles Babbage Institute Center for the History of Information Technology. "Other Resources". Accessed at http://www.cbi.umn.edu/resources/index.html

- Computer History Museum. Home page. Accessed 8/28/04 at http://www.computerhistory.org/

Topics/activities:
- Introductions, syllabus review – what will be covered in this class. (40 min.)

- ***Mona Jimenez*** will conduct an interactive review of computer technical history, structures, major developments and terminology, beginning in the 1940s. (1:10-2:40PM - 90 min.)

- ***Howard Besser*** will review preservation principles; compare traditional preservation to digital preservation; take a look at problems with digital longevity, according to frameworks proposed by a 1994 Task Force on Digital Information; and take an in-depth look at the OAIS activities. (3:00-4:30PM - 90 min.)

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Class 2: Wednesday, September 17 (top)

Due this class
  Read the following:
- Cornell University Library Research Department. Sections linked to below in Moving Theory into Practice: Digital Imaging Tutorial. Accessed 8/19/08 at http://www.library.cornell.edu/preservation/tutorial/intro/intro-01.html
  All of the terms that are defined there.

- Technical Advisory Services for Images. "File Formats and Compression". Last update 2005. Accessed 8/19/08 at

http://www.tasi.ac.uk/advice/creating/fformat.html

- Arms, Caroline R. and Carl Fleischhauer. Sections linked to below in Sustainability of Digital Formats: Planning for Library for Congress Collections. Accessed 8/19/08 at
  http://www.digitalpreservation.gov/formats/content/still.shtml
  http://www.digitalpreservation.gov/formats/content/sound.shtml
  http://www.digitalpreservation.gov/formats/content/video.shtml
  http://www.digitalpreservation.gov/formats/intro/intro.shtml
  http://www.digitalpreservation.gov/formats/intro/format_eval_rel.shtml
  http://www.digitalpreservation.gov/formats/fdd/fdd000001.shtml
  http://www.digitalpreservation.gov/formats/fdd/fdd000003.shtml
  http://www.digitalpreservation.gov/formats/fdd/fdd000059.shtml
  http://www.digitalpreservation.gov/formats/fdd/fdd000183.shtml
  http://www.digitalpreservation.gov/formats/fdd/fdd000081.shtml
  http://www.digitalpreservation.gov/formats/fdd/fdd000127.shtml
  http://www.digitalpreservation.gov/formats/fdd/fdd000028.shtml
  http://www.digitalpreservation.gov/formats/fdd/fdd000052.shtml

- Ken. "Professional Digital Video Tape Recorder Comparison". Accessed 8/22/08 at
  http://kensystem.com/kensys/vtr.htm
  No longer available.

- Video Interchange website. Vintage Audio Recording History. Only from "Sony PCM-F10 (1978) - PCM-F1 (1981)" to end. Accessed 8/22/08 at
  http://www.videointerchange.com/audio_history.htm

- Video recording formats website. Read sections "uncompressed digital formats", "Digital formats employing compression" & "D series digital formats" to end. Accessed 8/22/08 at
  http://users.tkk.fi/~iisakkil/videoformats.html

- Poynton, Charles. "Chroma Subsampling Notation". 2002. Accessed 8/26/08 at
  http://scanline.ca/ycbcr/Chroma_subsampling_notation.pdf

- Dolphin Music. BlueFox Website. "What does the bit depth and sample rate refer to?" Accessed 8/26/08 at
  http://www.bluefoxvideo.com/video-audio-articles/bit-depth-and-sample-rate.html

- Robin, Michael. "Digital Video Basics". Broadcast Engineering. May, 2004 issue. Accessed 8/26/08 at
  http://www.printthis.clickability.com/pt/cpt?action=cpt&title=Digital+video+basics&expire=&urlID=19485970&fb=Y&url=http%3A%2F%2Fbroadcastengineering.com%2Finfrastructure%2Fbroadcasting_digital_video_basics_2%2Findex.html&partnerID=99531

- European Broadcasting Union (EBU). "Broadcast Wave Format (BWF) user guide". 2007. Accessed 8/22/08 at
  http://www.ebu.ch/en/technical/publications/userguides/bwf_user_guide.php

  Optional Review:
- Apple Inc. "QuickTime File Format Specification". 2007. Accessed 8/22/08 at
  http://developer.apple.com/documentation/QuickTime/QTFF/qtff.pdf

Topics/activities:
- Check in and review of readings (30 min)

- ***Melitte Buchman*** will speak about graphic files: still file types and formats, vector vs. bitmap; typical metadata, computer color, color spaces, color management, changes in computer displays, the possible impact of migration, and strategies and standards, especially as they apply to maintaining digital images over time. (1:00-2:40PM - 100 min.)

- Moving image and sound digitization theory and discussion of relevant digital tape and file formats (90 min)

- Check-in on Assignment: (10 min.)

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Class 3: Wednesday, September 24 (Assignment Plan Due) (top)

Due this class:
- Assignment plan due: identifying contact information of people at organizations that you will speak to, a very brief background on the organization and why you chose them, allocation of responsibility for project completion, and an outline identifying points of focus for questioning.

  Read the Following:
Due this class:
- Assignment plan due: identifying contact information of people at organizations that you will speak to, a very brief background on the organization and why you chose them, allocation of responsibility for project completion, and an outline identifying points of focus for questioning.

  Read the Following:
- Apple, Inc. Final Cut Pro 6 Manual. Ch. 17, 18, Appendix B & C. Find on Blackboard.

- Steinberg. Wavelab 6 Manual Section on Recording. pp. 147 – 154. Find on Blackboard.
  http://videopreservation.stanford.edu/dig_mig/index.html

- Pohlmann, Ken. "Measurement and Evaluation of Analog-to-Digital Converters Used in the Long Term Preservation of Audio Recordings" (roundtable discussion, "Issues in Digital Audio Preservation Planning and Management," Washington, DC, March 10-11, 2006). Also available online:
  http://www.clir.org/activities/details/AD-Converters-Pohlmann.pdf

  Watch:
- Apple, Inc. Final Cut Tutorials on the web site of Apple, Inc. 2007. Retrieved 09/22/08 at
  http://www.apple.com/finalcutstudio/tutorials/#tab=fcstudio&tutorial=mov-fcpoverview

http://www.apple.com/finalcutstudio/tutorials/#tab=fcstudio&tutorial=mov-fcpexport

Topics/activities:
- Lab work: Digital capture of analog audio and video; metadata capture, use and output; use and comparison of various file formats and resolutions; Issues in digitization, migration and exchange. (3 hours 40 min.)

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Class 4: Wednesday, October 8 (top)

Due this class:
Read the following:
- Library of Congress Audio-Visual Prototyping Project, "Typical Elements for Use in a Statement of Work for the Digital Conversion of Sound Recordings and Related Documents" on the web site of the Library of Congress Audio-Visual Prototyping Project. 1999. Accessed 8/19/08 at http://lcweb.loc.gov/rr/mopic/avprot/audioSOW.html

- Grammy Recording Academy Website. Producers and Engineers Wing. Read "Recommendation for Delivery of Recorded Music Projects 2008" **and** "Digital Audio Workstation Guidelines for Music Production — Full Version" http://www.grammy.com/Recording_Academy/Producers_And_Engineers/Guidelines/

- Apple, Inc. Final Cut Pro 6 Manual. Read Volume IV, Chapters 10 and 11 (PDF pages IV-129 through IV-161) - "Importing and Exporting EDLs" and "Using Final Cut Pro XML and Quicktime Metadata". Find manual on Blackboard.

- American Library Association, "Digital Rights Management and Libraries" on the web site of ALA. Accessed 8/19/08 at http://www.ala.org/ala/washoff/woissues/copyrightb/digitalrights/digitalrightsmanagement.cfm

- Duncan, Charles et al. "Digital Rights Management: Final Report". JISC. 2004. Accessed 8/19/08 at http://www.intrallect.com/index.php/intrallect/knowledge_base/general_articles/jisc_drm_study_2004__1

Topics/activities:

- ***Brian Hoffman*** will lecture on the topic of digital workflows and the preservation lifecycle (12:30-2:10PM - 100 min.)

- ***Grace Agnew*** will lecture on digital rights management (DRM) – a technical overview and the implications to archives and libraries (2:30–4:10PM - 100 min.)

- Wrap up discussion, questions and comments (20 min.)

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Class 5: Wednesday, October 29 (top)

Due this class:
Read the following:
- Wilson, Andrew; Richard Wright; Malcolm Polfreman; Sheila Anderson; Simon Tanner; and Emma Beer. Only "Chapter 7: Moving Images and Sound Metadata Review and Requirements" in "Moving Images and Sound Archiving Study". Arts and Humanities Data Service. 2006. Accessed 8/19/08 at http://www.jisc.ac.uk/media/documents/programmes/preservation/moving%20pictures%20and%20sound%20archiving%20final%20version.doc

- The National Information Standards Organization (NISO). "Framework of Guidance for Building Good Digital Collections". Version 3. 2007. Accessed 8/19/08 at http://framework.niso.org/node/5

- Gartner, Robert. "Metadata for Digital Libraries: State of the Art and Future Directions." JISC Standards and Technology Watch, Version 1.0, April 2008. Accessed 8/21/08 at http://www.jisc.ac.uk/media/documents/techwatch/tsw_0801pdf.pdf

- "METS: An Overview and Tutorial." Metadata Encoding and Transmission Standard Official Website. Accessed 8/21/08 at http://www.loc.gov/standards/mets/METSOverview.v2.html

- PBCore v1.1 User Guide. Accessed 8/21/08 at http://www.pbcore.org/PBCore/UserGuide.html

- "Trustworthy Repositories Audit & Certification: Criteria and Checklist (TRAC)", Version 1.0, Feb. 2007, Center for Research Libraries and RLG Programs (revised and expanded version of The Audit Checklist for the Certification of Trusted Digital Repositories, originally developed by RLG-NARA Digital Repository Certification Task Force). Accessed 9/2/2007 at http://www.crl.edu/PDF/trac.pdf

View the following:
- Library of Congress. "Preserving Public Television" in the Library of Congress Webcasts. 2006. **Requires Real Player to be installed on your computer.** Accessed 8/19/08 at http://www.loc.gov/today/cyberlc/feature_wdesc.php?rec=3848

Topics/activities:
- Lab Work: Working with digital audio and video files, performing routine tasks of creating checksums, documentation and parsing of metadata for capture, exporting metadata, creating preservation object deliverables. (100 min)

- ***Kara Van Malssen*** will discuss her involvement with the NDIIPP project; Discuss the landscape of planning, implementing and maintaining a repository, and identify the role of the moving image and sound archivist in that landscape. Kara will also provide concrete examples of metadata – taking a field by field look at a METS XML document. (2:30-4:30PM - 120 min)

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Class 6: Wednesday, November 5 (Assignment Due) (top)

<u>Due this class:</u>
- Final Draft of Assignment Due

    Read the following:
- Cornell University Library Research Department. "Foundations: Introduction" in Digital Preservation Management: Implementing Short-term Strategies for Long-term Problems. Accessed 8/19/08 at http://www.icpsr.umich.edu/dpm/dpm-eng/foundation/index.html

- Wilson, Andrew; Richard Wright; Malcolm Polfreman; Sheila Anderson; Simon Tanner; and Emma Beer. Only "Chapter 8: Life Cycle and Organizational Models" in Moving Images and Sound Archiving Study. Arts and Humanities Data Service. 2006. Accessed 8/19/08 at http://www.jisc.ac.uk/whatwedo/programmes/programme_preservation/project_movingimagesound.aspx

- Bradley, Kevin. "Defining Digital Sustainability". LIBRARY TRENDS, Vol. 56, No. 1, Summer 2007 ("Preserving Cultural Heritage," edited by Michèle V. Cloonan and Ross Harvey), pp. 148–163. 2007. The Board of Trustees, University of Illinois. Find on Blackboard site for class.

- Lavoie, Brian. "The Fifth Blackbird: Some Thoughts on Economically Sustainable Digital Preservation." 2008. *D-Lib Magazine*, 14,3/4 (March/April). Accessed 8/21/08 at www.dlib.org/dlib/march08/lavoie/03lavoie.html.

- Palm, Jonas. "The Digital Black Hole." 2006(?). Training for Audiovisual Preservation in Europe (TAPE). Accessed 8/22/08 at http://www.tape-online.net/docs/Palm_Black_Hole.pdf

- Moore, R.L., J. D'Aoust, R.H. McDonald, and D. Minor. "Disk and Tape Storage Cost Models." In: Proceedings of the IS&T Archiving Conference, p. 29 (2007). Accessed 8/22/08 at http://www.sdsc.edu/~mcdonald/content/papers/dt_cost.pdf

    Review:
- AJA Data Rate Calculator:
    - Mac OSX http://www.aja.com/ajashare/AJA_Data_Rate_Calculator_v2.app.tar
    - Windows http://www.aja.com/ajashare/AJA_dataratecalculator_win_10-5.zip

<u>Topics/activities:</u>
- Discussion, questions and comments (30 min.)

- Storage media, architectures and structures; Trusted Digital Repositories; Estimating capacity and throughput (90 min.)

- *Yvonne Ng* will discuss her work on the NDIIPP project, assessing and reporting on the sustainability of digital repositories (3:00-4:30PM - 90 min.)

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Class 7: Wednesday, December 3 (top)

Due this class:
Read the following:
- To be announced

Topics/activities:
- Discussion, questions and comments (20 min.)

- *David Rice* will lecture on his work within WNET on developing and implementing an asset management system revolving around moving image and sound content. (12:50-2:30PM - 100 min.)

- *Leala Abbott* will lecture on her past and current work developing and implementing asset management systems primarily for still image collections. (2:50-4:30PM - 100 min.)

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Plagiarism Advisory:

Plagiarism and other violations of the University's published policies are serious offenses and will be punished severely. Plagiarism includes presenting or paraphrasing a phrase, sentence, or passage of a published work (including material from the World-Wide Web) in a paper or exam answer without quotation marks and attribution of the source, submitting your own original work toward requirements in more than one class without the prior permission of the instructors, submitting a paper written by someone else, submitting as your own work any portion of a paper or research that you purchased from another person or commercial firm, and presenting in any other way the work, ideas, data, or words of someone else without attribution. These are punishable offenses whether intended or unintended (e.g., occurs through poor citations or confusion about how to reference properly).