New York University Moving Image Archiving and Preservation
CINE-GT 3403, VIDEO PRESERVATION 1
Mondays, 6:00pm - 9:00pm
665 Broadway, Room 643

Fall 2016 Course Syllabus l v1.0.0

INSTRUCTOR

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GOALS

This class is the first of two courses will give students direct experience with the process of reformatting video materials for preservation and access. Addressing in-house systems and work with vendors, the class will increase knowledge in areas of archival standards, prioritization and decision-making, source and destination formats, technical requirements and systems, preparation and workflow, documentation and metadata capture, quality assurance, and overall project management. Students will have hands-on experience with tape preparation and reformatting using equipment in the MIAP Lab and will interact with experts from preservation vendors and other NYU departments.

EXPECTATIONS

Each student will take one exam and complete one assignment, as outlined below. Additional tasks may be required as we go through the course. Attendance at all classes is mandatory and the student must make arrangements ahead for any classes missed, except in the case of illness and other unexpected absences, when the student must notify by email or phone the instructor before class time. Unexcused absences will substantially affect grades. Grades will be based on a combination of class preparedness and the level of participation (20%) and assignments (80%).

Course projects will be submitted in electronic form by the beginning of the class period on the due date. Go to the Blackboard site for this class found under the "Academics" tab on the NYU Home site. Click on the Communication tab and then on Discussion Forum. You should see a link to your own individual forums. This is where you should upload your assignments.

Your work may be made part of the MIAP Digital Archive in a private space for faculty use, and on the MIAP web site, where appropriate. Please inform the professors of any papers that cannot be published on the web due to confidentiality restrictions or other reasons, or if you have other concerns about your work being posted. In some cases, the title of a paper may be published, but access to the paper will be restricted to selected MIAP faculty and staff. When electronic files are submitted, the file names must conform to the standard format (please see end of syllabus for instructions on file naming.)

REQUIRED TEXTS

1. Charles Poynton. *Digital Video and HD, Second Edition: Algorithms and Interfaces* (The Morgan Kaufmann Series in Computer Graphics). ISBN: 9780123919267

Online access available via ScienceDirect at the following URL (institutional access required):

http://ezproxy.library.nyu.edu:2069/science/book/9780123919267

2. Diana Weynand, Vance Piccin, and Marcus Weise. *How Video Works, Third Edition: From Broadcast to the Cloud.* 2015. Focal Press. ISBN: 1138786012

Online access available via ProQuest/NYU at the following URLs:

http://site.ebrary.com/lib/nyulibrary/detail.action?docID=11091167&p00=video+works+cloud

For off-campus online access:

http://ezproxy.library.nyu.edu:2048/login?url=http://site.ebrary.com/lib/nyulibrary/detail.action?docID=11091167&p00=video+works+cloud

Note that this E-book requires Adobe Digital Editions and an Ebrary account (both free).

EXAMS / ASSIGNMENTS

Exam

An exam will be administered in the second half of class on October 3rd and will count towards 30% of the final grade. The exam will cover content found in the 9/19, 9/26, and 10/3 readings from Poynton and Weynand, as well as any other related content covered in class leading up to 10/3.

Assignment - Completing a Video Reformatting Project

Each student will be responsible for managing the preservation of at least one analog audio or videotape and creating derivative(s), necessary source and destination metadata and checksums. Students must sign up for at least one 90 minute Transfer time slot between October 17th and November 7th, as well as one Encoding/Quality Control slot between October 17th and November 7th. Encoding time slots should immediately follow Transfer time slots; meaning if a student were to perform a transfer on October 17th, an Encoding session should be scheduled for October 24th, unless a conflict occurs. Six reserved "retransfer/reencode" time sots are available on November 7th in case additional time is needed. Retransfer time slots are subject to change depending on demand.

This assignment is due before the last day of class, November 24th, and will count towards 50% of the final grade.

CLASS SCHEDULE

Class 1: September 12th - INTRODUCTION
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Topics/activities:

- Introductions
- Syllabus review, address any potential class scheduling conflicts

Class 2: September 19th - LECTURE 1
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Read/due this class (60 pages total, reading time approx. 2-3 hours):

Digital Video and HD, "Introduction to composite NTSC and PAL" pg. 135-139 (4 pages)
Digital Video and HD, "Introduction to luma and chroma" pg. 121-128 (7 pages)

How Video Works, "Video Scanning" pg. 15-24 (9 pages)
How Video Works, "Color Video" pg. 53-68 (15 pages)
How Video Works, "The Encoded Signal" pg. 113-122 (9 pages)
How Video Works, "Television Standards" pg. 136-152 (16 pages)

Topics/activities:

- Review of readings
- Lab demonstration: Samples derived from various analog video sources

Class 3: September 26th - LECTURE 2
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Read/Due this class (88 pages total, reading time approx. 3-4 hours):

Digital Video and HD, "Raster Images" pg. 3-18 (16 pages)
Digital Video and HD, "Raster Scanning" pg. 83-96 (13 pages)
Digital Video and HD, "Frame, field, line, and sample rates" pg. 389-398 (9 pages)

How Video Works, "Digital Theory" pg. 123-134 (11 pages)
How Video Works, "Monitoring the Image" pg. 69-81 (12 pages)
How Video Works, "Signal Monitoring" pg. 83-95 (12 pages)
How Video Works, "Digital Scopes" pg. 97-112 (15 pages)

In addition to these readings, please bring in your personal laptops with the following software loaded:

MediaInfo (CLI v0.7.88): https://mediaarea.net/en/MediaInfo/Download

QCTools (GUI v0.7.2): https://www.bavc.org/preserve-media/preservation-tools

Topics/activities:

- Review of readings
- Lab demonstration: function and use of video scopes, time base correctors, audio gain stage devices and other equipment for signal monitoring and adjustments during the workflow.
- Decision-making in signal adjustment
- Exercise: File characterization using MediaInfo to extract general and verbose file metadata.
- Exercise: Quality Control of files using lab hardware and software.

Class 4: October 3rd - LECTURE 3 & EXAM
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Read/Due this class (11 pages, reading time approx. 30 minutes):

Digital Video and HD, "H264 Video Compression" pg. 537-548 (11 pages)

FFmpeg - http://www.ffmpeg.org
BagIt (Python) - http://www.loc.gov/bagit

Topics/activities:

- Review of readings
- Administer exam (approx. 1 hour)
- Lab demonstration: Set up and routing of audio and video signals for capture

———————————————-FALL RECESS - Oct 10th———————————————-

Class 5: October 17th - LAB WEEK 1
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Lecture 6:00pm - 7:00pm

Read/Due this class:

Sony Videocassette Recorder BVU950 Operations Manual
DPS290 TBC Operations Manual
DPS295 TBC Operations Manual

Topics/activities:

 - Review of readings

Lab time 7:30pm - 10:00pm

Station 1 - Transfer (7:30 - 8:45pm)
Station 2 - Transfer (8:45 - 10:00pm)
Station 3 - Transfer (7:30 - 8:45pm)
Station 4 - Transfer (8:45 - 10:00pm)

Class 6: October 24th - LAB WEEK 2

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Lecture 6:00pm - 7:00pm

Lab time 7:30pm - 10:00pm

Station 1 - Encoding / Quality Control (7:30 - 8:45pm, 8:45 - 10:00pm)
Station 2 - Transfer (7:30 - 8:45pm, 8:45 - 10:00pm)
Station 3 - Transfer (7:30 - 8:45pm, 8:45 - 10:00pm)
Station 4 - Encoding / Quality Control (7:30 - 8:45pm, 8:45 - 10:00pm)

Class 7: October 31st - LAB WEEK 3

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Lecture 6:00pm - 7:00pm

Lab time 7:30pm - 10:00pm

Station 1 - Encoding / Quality Control (7:30 - 8:45pm, 8:45 - 10:00pm)
Station 2 - Transfer (7:30 - 8:45pm, 8:45 - 10:00pm)
Station 3 - Transfer (7:30 - 8:45pm, 8:45 - 10:00pm)
Station 4 - Encoding / Quality Control (7:30 - 8:45pm, 8:45 - 10:00pm)

Class 8: November 7th LAB WEEK 4

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Lecture 6:00pm - 7:00pm

Lab time 7:30pm - 10:00pm

Station 1 - Encoding / Quality Control / Quality Control (7:30 - 8:45pm, 8:45 - 10:00pm)
Station 2 - Transfer (7:30 - 8:45pm, 8:45 - 10:00pm)
Station 3 - Transfer (7:30 - 8:45pm, 8:45 - 10:00pm)
Station 4 - Encoding / Quality Control (7:30 - 8:45pm, 8:45 - 10:00pm)

———————————————-_NOVEMBER 9-12th - AMIA_———————————————-

Class 9: November 14th PENULTIMATE CLASS w/ SPECIAL GUESTS

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Topics/activities:

- Check-in with Peter Oleksik, Assistant Conservator, Museum of Modern Art.
- Maurice Schechter, Mercer Media/Video Engineering Consultant
- Lab assignment de-briefing
- AMIA Conference de-briefing

Class 10: November 21st FINAL CLASS

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Topics/activities:

- Check-in with: Mona Jimenez. Mona will talk about her book VIDEO PROCESSING TOOLS.
- Fill out MIAP teacher feedback forms
- Salutations

FORMATTING FOR WRITTEN ASSIGNMENTS

year semester_class number_author's last name_assignment number.extension

Example: 05s_1800_Smith_a1.doc

For multiple authors, the two initials of each author will be used, separated from each other by underscores. An underscore and the assignment number will follow this. Assignment numbers are determined by the order in which the assignments are given. They begin with an 'a,' followed by a number between one and ten. For assignments with multiple files, a letter can be added after the number. Thus, one could have 'a1b,' meaning that this is the second of multiple files from one student for one particular assignment. If a student decides to withhold her work from being freely available online, she may alert the professor, as well as by adding "_x " after the assignment number in file name:

Example: 05s_1800_smith_a1_x.doc

Otherwise, permission shall be implicitly granted for the student's work to be posted on the digital archive website.