

# HANDLING COMPLEX MEDIA

**Handling Complex Media: CINE-GT 1805**

**721 Broadway, Room 652**

**Tuesdays, 5:30pm-9:30pm**

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Please call or email to schedule

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## **Course Description**

This seminar will increase students' knowledge of primary issues and emerging strategies for the preservation of media works that go beyond single channels/screens. Students will gain practical skills with identification and risk assessment for works as a whole and their component parts, particularly in the areas of audio and visual media and digital, interactive media projects that are stored on fixed media, presented as installations, and existing in networks.

Examples of production modes/works to be studied are animations (individual works and motion graphics) web sites, games, interactive multimedia (i.e., educational/artist CDROMs), and technology-dependent art installations. Students will test principles and practices of traditional collection management with these works, such as appraisal, selection, care and handling, risk/condition assessment, "triage", description, and storage and will be actively involved in developing new strategies for their care and preservation. Case studies will be undertaken in collaboration with artists/producers, museums, libraries, and/or archives. Digital archivists, artists/producers, museum conservators, collection managers, and others with expertise in the above will provide a wide range of perspectives in a series of guest lectures.

## **Course Format**

A guest lecturer will speak at the beginning of each class, highlighting topics raised in assigned readings and describing their work and experience. Discussion will follow, led by the course instructors using questions submitted by students each week prior to class. After a short dinner break, students will engage in hands-on lab work related to course topics or assignments.

## **Learning Objectives**

At the conclusion of this course, students should:

- Understand concepts of digital forensics and be able to use forensic acquisition techniques (i.e., write blockers) to safely copy content from digital carries such as external hard drives, floppy disks, removable flash storage devices (such as SD cards and USB drives), optical media, and computers.
- Understand and be able to use BitCurator and other tools employed in digital forensic acquisition workflows.

- Understand how computers work and be able to identify and account for hardware and software dependencies of digital media projects during preservation planning.
- Understand disk imaging procedures and different types of disk images, and be able to create, document, and access disk images.
- Understand emulation concepts and tools, including emulation-as-a-service (Eaas), and be able to install and run emulators (e.g., VirtualBox, Basilisk, Sheepshaver, etc) purposefully to realize access and/or exhibition objectives for software-based digital media projects.
- Understand software development workflows and tools including GitHub and its use in software creation as well as preservation.
- Understand conservation methodology and ethics, especially as they apply to digital media projects and artworks including those with sound elements, multi-channel video installations, multimedia sculpture, websites, and interactive artworks.
- Understand the unique context of the artist's studio and archive, and the special considerations and challenges of this context for archivists and conservators.
- Understand digital film production workflows and born-digital elements, and be able to identify and plan for the preservation of various digital film formats including DCP and DPX.
- Possess basic knowledge of preservation strategies and risks of digital media projects on exotic platforms, including websites, podcasts, VR/AR environments, social media, etc. and the landscape of rapidly developing resources emerging to address these preservation needs.
- Understand how strategic, collaborative initiatives have been developed in the past to address preservation and conservation challenges too complex for individual effort alone to resolve, and possess basic knowledge of how to initiate the formation of such an initiative.

### **Course Texts**

All readings are available electronically. For a list of each week's readings, see the "**Readings**" header. If you have any issues accessing readings, please contact Nicole or Amy ASAP.

All course materials and communications will be made available on the class website:

<https://www.handlingcomplexmedia.com/>

### **Expectations**

- Attend class each week and arrive on time
- Complete required readings each week in order to be prepared for class exercises and discussions
- *Submit at least one question about the readings each week for in-class discussion*
- Participate in hands-on lab work and cooperate with fellow students
- Complete both assignments and meet deadlines
- Bring laptop computers on lab days designated in the course syllabus.

### **Attendance & Participation**

Punctuality, attendance, and participation are expected of every student. Absences must be discussed with the instructors prior to missing class. Unexcused absences and lateness will affect your grade. Grades will be based on a combination of attendance (20%); class preparedness and participation (20%); and assignments (25% for assignment 1 and 35% for the final project). Class sessions will include a mix of lecture, discussion, demonstrations, and group or individual exercises. Your participation in these in-class activities is a required part of your grade. Many in-class exercises and homework assignments will require a computer. Laptops are required for in-class labs, so please bring your computer to class (see syllabus for details). Please inform the instructor if you regularly cannot bring a laptop so that arrangements can be made.

### **Grading**

1) attendance (20%)

- 2) participation (20%) – [submit weekly questions for discussion](#), engage in discussion, conduct lab work, assist fellow students
- 3) first assignment (25%) – CD-ROM Preservation Plan
- 4) final project (35%) – Student’s option

***No late assignments will be accepted except under extraordinary circumstances. Approval for an extension and/or an Incomplete grade must be sought prior to associated due dates.***

## **NYU/TISCH POLICIES**

### ***Tisch Policy on Academic Integrity***

The core of the educational experience at the Tisch School of the Arts is the creation of original work by students for the critical review of faculty members. Any attempt to evade that essential transaction through plagiarism or cheating is educationally self-defeating and a grave violation of Tisch’s community standards. Plagiarism is presenting someone else’s original work as if it were your own; cheating is an attempt to deceive a faculty member into believing that your mastery of a subject or discipline is greater than it really is. Penalties for violations of Tisch’s Academic Integrity Policy may range from being required to redo an assignment to dismissal from the School. For more information on the policy--including academic integrity resources, investigation procedures, and penalties--please refer to the [Policies and Procedures Handbook](#) ([tisch.nyu.edu/student-affairs/important-resources/tisch-policies-and-handbooks](http://tisch.nyu.edu/student-affairs/important-resources/tisch-policies-and-handbooks)) on the website of the Tisch Office of Student Affairs.

### ***Health & Wellness Resources***

Your health and safety are a priority at NYU. If you experience any health or mental health issues during this course, we encourage you to utilize the support services of the 24/7 NYU Wellness Exchange 212-443-9999. Also, all students who may require an academic accommodation due to a qualified disability, physical or mental, please register with the Moses Center 212-998-4980. Please let your instructor know if you need help connecting to these resources. Students may also contact MIAP Director Juana Suárez ([juana@nyu.edu](mailto:juana@nyu.edu)) and/or Academic Program Manager, Jess Cayer ([jess.cayer@nyu.edu](mailto:jess.cayer@nyu.edu)) for help connecting to resources.

### ***Sexual Misconduct, Relationship Violence, and Stalking Policy & Reporting Procedures***

NYU seeks to maintain a safe learning, living, and working environment. To that end, sexual misconduct, including sexual or gender-based harassment, sexual assault, and sexual exploitation, are prohibited. Relationship violence, stalking, and retaliation against an individual for making a good faith report of sexual misconduct are also prohibited. These prohibited forms of conduct are emotionally and physically traumatic and a violation of one’s rights. They are unlawful, undermine the character and purpose of NYU, and will not be tolerated. A student or employee determined by NYU to have committed an act of prohibited conduct is subject to disciplinary action, up to and including separation from NYU. Students are encouraged to consult the online [Sexual Misconduct, Relationship Violence, and Stalking Resource Guide for Students](#) ([nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/sexual-misconduct--relationship-violence--and-stalking-resource-.html](http://nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/sexual-misconduct--relationship-violence--and-stalking-resource-.html)) for detailed information about on-campus and community support services, resources, and reporting procedures. Students are also welcome to report any concerns to MIAP Director Juana Suárez ([juana@nyu.edu](mailto:juana@nyu.edu)) and/or Academic Program Manager, Jess Cayer ([jess.cayer@nyu.edu](mailto:jess.cayer@nyu.edu)).

### ***NYU Title IX Policy***

Tisch School of the Arts is dedicated to providing its students with a learning environment that is rigorous, respectful, supportive and nurturing so that they can engage in the free exchange of ideas and commit themselves fully to the study of their discipline. To that end Tisch is committed to enforcing University policies prohibiting all forms of sexual misconduct as well as discrimination on the basis of sex and gender. Detailed information regarding these policies and the resources that are available to students through the Title IX office can be found by using the [this link. https://www.nyu.edu/about/policies-guidelines-compliance/equal-opportunity/title9.html](https://www.nyu.edu/about/policies-guidelines-compliance/equal-opportunity/title9.html)

### ***Non-Discrimination and Anti-Harassment Policy & Reporting Procedures***

NYU is committed to equal treatment and opportunity for its students and to maintaining an environment that is free of bias, prejudice, discrimination, and harassment. Prohibited discrimination includes adverse treatment of any student based on race, gender and/or gender identity or expression, color, religion, age, national origin, ethnicity, disability, veteran or military status, sexual orientation, marital status, or citizenship status, rather than on the basis of his/her individual merit. Prohibited harassment is unwelcome verbal or physical conduct based on race, gender and/or gender identity or expression, color, religion, age, national origin, ethnicity, disability, veteran or military status, sexual orientation, marital status, or citizenship status. Prohibited discrimination and harassment undermine the character and purpose of NYU and may violate the law. They will not be tolerated. NYU strongly encourages members of the University Community who have been victims of prohibited discrimination or prohibited harassment to report the conduct. MIAP students may make such reports to MIAP Director Juana Suárez ([juana@nyu.edu](mailto:juana@nyu.edu)) and/or Academic Program Manager, Jess Cayer ([jess.cayer@nyu.edu](mailto:jess.cayer@nyu.edu)), or directly to Marc Wais, Senior Vice President for Student Affairs. Students should refer to the University's [Non-Discrimination and Anti-Harassment Policy and Complaint Procedures](http://nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/non-discrimination-and-anti-harassment-policy-and-complaint-proc.html) ([nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/non-discrimination-and-anti-harassment-policy-and-complaint-proc.html](http://nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/non-discrimination-and-anti-harassment-policy-and-complaint-proc.html)) for detailed information about on-campus and community support services, resources, and reporting procedures.

### ***NYU Guidelines for Compliance with the Family Educational Rights and Privacy Act (FERPA)***

The Family Educational Rights and Privacy Act of 1974 (FERPA) was enacted to protect the privacy of students' education records, to establish the rights of students to inspect and review their education records, and to provide students with an opportunity to have inaccurate or misleading information in their education records corrected. In general, personally identifiable information from a student's education records, including grades, may not be shared without a student's written consent. However, such consent is not needed for disclosure of such information between school officials with legitimate educational interests, which includes any University employee acting within the scope of their University employment. See [here](http://nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/FERPA.html) ([nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/FERPA.html](http://nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/FERPA.html)) for full policy guidelines.

### ***NYU Student Religious Observance Policy***

See [here](#) for the University Calendar Policy on Religious Holidays.

### ***NYU Academic Support Services***

NYU offers a wide range of academic support services to help students with research, writing, study skills, learning disability accommodation, and more. Here is a brief summary:

#### ***NYU Libraries***

Main Site: [library.nyu.edu](http://library.nyu.edu); Ask A Librarian: [library.nyu.edu/ask](http://library.nyu.edu/ask)

70 Washington Square S, New York, NY 10012

Staff at NYU Libraries has prepared a guide (<http://guides.nyu.edu/c.php?g=276579&p=1844806>) covering services and resources of particular relevance to graduate students. These include research services and guides by topic area, subject specialists, library classes, individual consultations, data services, and more. There's also a range of study spaces, collaborative work spaces, and media rooms at Bobst, the library's main branch.

#### ***The Writing Center***

[nyu.mywconline.com](http://nyu.mywconline.com)

411 Lafayette, 4th Floor, 212-998-8860, [writingcenter@nyu.edu](mailto:writingcenter@nyu.edu)

The Writing Center is open to all NYU students. There, students can meet with a faculty writing consultant or a senior peer tutor at any stage of the writing process, about any piece of writing (except exams). Appointments can be scheduled online. Students for whom English is a second language can get additional help with their writing through a monthly workshop series scheduled by the Writing Center ([cas.nyu.edu/content/nyu-as/cas/ewp/writing-resources/rise-workshops.html](http://cas.nyu.edu/content/nyu-as/cas/ewp/writing-resources/rise-workshops.html)).

#### ***The University Learning Center (ULC)***

[nyu.edu/ulc](http://nyu.edu/ulc)

Academic Resource Center (18 Washington Pl, 212-998-8085) or University Hall (110 East 14th St, 212-998-9047)

*Peer Writing Support:* All students may request peer support on their writing during drop-in tutoring hours for "Writing the Essay / General Writing" at the University Learning Center (ULC), which has two locations noted above. Students for whom English is a second language may wish to utilize drop-in tutoring geared towards international student writers (see schedule for "International Writing Workshop").

*Academic Skills Workshops:* The ULC's Lunchtime Learning Series: Academic Skills Workshops focus on building general skills to help students succeed at NYU. Skills covered can help with work in a variety of courses. Workshops are kept small and discuss topics include proofreading, close reading to develop a thesis, study strategies, and more. All Lunchtime Learning Series workshops are run by Peer Academic Coaches.

***Moses Center for Students with Disabilities***

[nyu.edu/students/communities-and-groups/students-with-disabilities.html](http://nyu.edu/students/communities-and-groups/students-with-disabilities.html)

726 Broadway, 3rd Floor, 212-998-4980, [mosescsd@nyu.edu](mailto:mosescsd@nyu.edu)

All students who may require an academic accommodation due to a qualified disability, physical or mental, are encouraged to register with the Moses Center. The Moses Center's mission is to facilitate equal access to programs and services for students with disabilities and to foster independent decision making skills necessary for personal and academic success. The Moses Center determines qualified disability status and assists students in obtaining appropriate accommodations and services. To obtain a reasonable accommodation, students must register with the Moses Center (visit the Moses Center website for instructions).

# 01 :: Introduction to Handling Complex Media

January 29, Tue 5:30pm – 9:30pm

721 Broadway, Room 652

## Topics

Syllabus review, course format and goals

Handling Complex Media – Introduction to Preservation Planning

How do computers work? Part I: Hardware

## Lab

Analyze Complex Media Object & Create Preservation Plan

# 02 :: Virtualization

February 5, Tue 5:30pm – 9:30pm

721 Broadway, Room 652

## Topics

Introduction to Virtual Machines

How do computers work? Part II: Software

[Virtual Desktop \(online emulator\)](#)

## Readings

[Fino-Radin: Art in the Age of Obsolescence](#)

[Krzyzanowski: Rutgers Department of Computer Science History of Operating Systems \(1970s – Today only\)](#)

[Tour the Console Living Room](#)

## Lab

Present Preservation Plan for Complex Media Object

HCM boot drive setup

Introduction to VirtualBox  
Hexcellent Hexercise

## 03 :: Emulation as a Service

February 12, Tue 5:30pm – 9:30pm  
721 Broadway, Room 652

**Guest Speaker: Ethan Gates, Yale Libraries**

### Topics

Class discussion: From Bitstreams to Heritage & the BitCurator Environment  
Using emulation in archives and repositories  
Computing environments and Virtual Box

### Readings

Gates: [Classroom Access to Interactive DVDs](#)

McKeehan, Dietrich, Kim, Rhonemus: [How to Party Like it's 1999: Emulation for Everyone](#) alternate link [here!](#)

Scott: [A Second Christmas Morning: The Console Living Room](#)

### Recommended

Rechert et al: [Characterization of CD-ROMs for Emulation-based Access](#)

Valizada et al: [Cloudy Emulation – Efficient and Scalable Emulation-based Services](#)

### Lab

[Mount USB drive via VirtualBox](#)

View CD-ROM ISOs in a [Windows 95 Virtual Machine](#)

## 04 :: Forensics I: Disk Imaging

February 19, Tue 5:30pm – 9:30pm  
721 Broadway, Room 652

**Guest Speaker: Eddy Colloton, Hirshhorn Museum**

## Topics

Forensics: Basic concepts and usage for investigation and preservation

Forensic disk imaging for archiving and preservation

Discuss [Assignment One](#)

## Readings

[Digital Preservation Coalition: Digital Preservation Handbook – Digital Forensics](#)

[Dietrich & Adelstien: Archival science, digital forensics, and new media art](#)

[Lee, Woods & Garfinkel: Extending Digital Repository Architectures to Support Disk Image Preservation and Access](#)

## Lab

Use write blocker to protect data

[Disk imaging using Disk Utility](#)

[Disk imaging using dd](#)

[Disk Imaging using Guymager software](#)

[Access disk image data using BitCurator Disk Image Access](#)

[Download Test Disk Image](#)

# 05 :: Forensics II: Bitcurator

February 26, Tue 5:30pm – 9:30pm

721 Broadway, Room 652

**Guest Speaker: Matthew Farrell, Duke University**

## Topics

Exploring Bitcurator in Archives

## Readings

[BitCurator Environment](#) (Read section I, review sections II, III, VI, and V)

[Lee, Woods, Kirschenbaum, Chassanoff: From Bitstreams to Heritage \(Ch. 1 – 5 only\)](#)

## Recommended

The [BitCurator Wiki & Quickstart Guide](#)

[Kirschenbaum et al: Digital Forensics and Born-Digital Content in Cultural Heritage Collections](#)

## Lab

Explore the BitCurator environment using the [BitCurator Wiki \(Sections II and III\)](#)

BitCurator Circus

1. [Using fiwalk to Generate DFXML](#)
2. [Using Bulk Extractor to locate potentially sensitive information](#)
3. [Calculate and display MD5 sums using Natilus scripts](#)
4. [Report on file types/file info using Natilus scripts](#)
5. [Display file in hex using Natilus scripts](#)

# 06 :: Digital Art

March 5, Tue 5:30pm – 9:30pm

721 Broadway, Room 652

## Topics

Handling and Preservation of Digital Art

## Readings

[Fino Radin: The Nuts and Bolts of Handling Digital Art](#)

[Limoncelli et al: System Network Administration \(p 14 - 29\)](#)

## Lab

Open Lab Time for Assignment One

## Recommended for Software Preservation

[The Internet Archive Software Collection](#)

[Gent: The Recomputation Manifesto](#)

[Meyerson et al: The Software Preservation Network \(SPN\): A Community Effort to Ensure Long Term Access to Digital Cultural Heritage](#)

[Matthews et. al: The Significant Properties of Software \(Ch 1 – 3 only\)](#)

## 07 :: Floppy Disks & Kryoflux

March 12, Tue 5:30pm – 9:30pm

721 Broadway, Room 652

**Guest Speaker:** *Shira Peltzman, UCLA Libraries*

### Topics

Archiving and preserving data stored on floppy disks

### Readings

Peltzman & Waugh: *The Archivist's Guide to KryoFlux: An Unofficial Manual*

*The Archivist's Guide to KryoFlux* (Read pages 1–6, review/skim remainder of the guide)

### Recommended

Waugh: *A Dogged Pursuit: Capturing Forensic Images of 3.5" Floppy Disks*

### Lab

Open Lab Time for Assignment One

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**SPRING RECESS**  
March 18 - March 24

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## 08 :: Midterm Presentations

March 26, Tue 5:30pm – 9:30pm

721 Broadway, Room 652

DUE: ASSIGNMENT ONE, FRIDAY, MARCH 29TH

## 09 :: Handling Complex Media in Museums & The Complex Medium of Sound

April 2, Tue 5:30pm – 9:30pm

721 Broadway, Room 652

### Topics

Overview of conservation theory and ethics

Museum practice overview: acquisition, exhibition, documentation & loan

Case study: Kevin & Jennifer McCoy, *Every Shot, Every Episode*

Sound art

### Readings

AIC: [Code of Ethics and Guidelines for Practice](#)

**Conservation Treatment Methodology, Barbara Appelbaum (selections)**

Video: [Media Conservation at MoMA](#)

Video: [Joanna Phillips, “Implementing Time-based Media conservation in Museum Practice”](#)

DUE: A2 PROPOSAL, FRIDAY, APRIL 5TH

## 10 :: The Artist's Studio & Archive

April 9, Tue 5:30pm – 9:30pm

721 Broadway, Room 652

**Guest Speaker: Jon Deringer, *Electronic Arts Intermix (EAI)***

### Topics

Preservation in the artist's studio and small collection

Conservation exercise: Oscar Bony, *60 Square Meters and Its Information* (1967)

## Readings

Matters in Media Art website: [www.mattersinmediaart.org](http://www.mattersinmediaart.org)

Lozano-Hemmer, “[Best Practices for Conservation of Media Art from an Artist’s Perspective](#)”  
(or [download the audio-only version](#))

## Recommended Readings from John Deringer

[EAI Online Resource Guide for Exhibiting, Collecting & Preserving Media Art](#)

[Artist's Description Bill Viola Anima, 2000](#)

Hearns-Bishop, [Examining Exemplary Pluralism](#)

Laurenson, [The Management of Display Equipment in Time-based Media Installations](#)

# 11 :: Digital Film

April 16, Tue 5:30pm – 9:30pm

721 Broadway, Room 652

*Guest Speaker: Peter Oleksik, Museum of Modern Art (MoMA), NYC*

## Topics

Born-digital elements, DCP, DPX & film preservation digitization projects

## Readings

[FADGI: Digitizing Motion Picture Film: Exploration of the Issues and Sample SOW](#)

Digital Dilemma [No.1](#) (Sections 5 & 6)

Digital Dilemma [No.2](#) (Progress report, Section 5)

## For Review

[NETFLIX Specifications and Guides](#) - especially Production/Post-production

[NETFLIX Technology Resources](#) - especially IMF Tools & Assisted QC Tools

[Digital Cinema Initiatives Current Spec](#) - look over the sections of DSM, DCDM and DCP

[Academy Color Encoding System](#)

[Embedding Metadata in DPX Files FADGI Report](#)

# 12 :: Archiving Websites and Apps

April 23, Tue 5:30pm – 9:30pm

721 Broadway, Room 652

**Guest Speakers: Coral Salomon, University of Pennsylvania Libraries  
Jonathan Farbowitz, Guggenheim**

### **Topics**

Tools, strategies, and resources needed to capture web- and app- based art  
Conservation of Computer-Based Art initiative at the Solomon R. Guggenheim Museum, NY /  
Conservation of “Brandon” by Shu Lea Cheang

### **Readings**

Thomson: [Preserving social media](#): applying principles of digital preservation to social media archiving

Ramírez-López: [Whats, Whys, and How Tos of Web Archiving](#)

McDonough et. al: [Preserving Virtual Worlds Final Report](#) (selections)

## **13 :: Collaboration in Conservation of Complex Media**

April 30, Tue 5:30pm – 9:30pm

721 Broadway, Room 652

**Guest Speakers: Glenn Wharton & Deena Engel**

### **Topics**

Collaborative projects in the care of complex media

### **Readings**

Wharton, Glenn & Deena Engel. [“Museum/University Collaboration in Media Conservation Research.”](#)

Wharton, Glenn, Deena Engel, & Marvin J. Taylor. 2016. [“The Artist Archives Project – David Wojnarowicz.”](#)

Wharton, Glenn. 2016. [“Reconfiguring Contemporary Art in the Museum.”](#)

Wharton, Glenn. 2018. [“Bespoke Ethics and Moral Casuistry in the Conservation of Contemporary Art.”](#)

Wharton, Glenn. 2015. [“Public Access in the Age of Documented Art.”](#)

## **Resources**

David Wojnarowicz Knowledge Base

DOCAM: Documentation and Conservation of The Media Arts Heritage

# **14 :: Last Class: Student Presentations**

May 7, Tue 5:30pm – 9:30pm

721 Broadway, Room 652

**DUE: FINAL PROJECT, FRIDAY, MAY 10TH**

## **Assignment One**

**CD-ROM Preservation Plan**

**March 26th, Tuesday – In-class presentations**

**March 29th, Friday – Assignment 1 paper due**

For the first assignment, students will write a Preservation Plan for an interactive CD-ROM.

In groups of three or four, choose a CD-ROM from Avery Fischer or NYU MIAP's collections and attempt to render and interact with the disk using legacy hardware in the Old Media Lab, as well as VirtualBox via a disk image and virtualization/emulation. Observe functionality and presentation of the CD-ROM using hardware and software render methods and document your findings. Report successes and failures from hands-on lab work and make recommendations for preservation in the form of a written Preservation Plan. Document your process, preservation descriptive information and successes and failures along the way. Your Preservation Plan should include each of the sections below:

- **Introduction** – Introduce your preservation plan and goals in creating it.
- **Description** – Write a basic description of the media object. What it is and how is it used?
- **Context & Historical Information** – Document background and history information to contextualize the object
- **Creator's Intent** – If possible, seek out descriptions of the creator's intent. This might include interviews the artist, developer or creator of the media object to determine the intention behind its creation, functionality, and presentation. Gather any secondary source information and/or make determinations based on your understanding of the object.
- **User Experience & Behavior** – Describe the user experience. How do users interact with or observe the media object? Detail any behaviors or dynamic operations (clicks, roll-overs, etc.) of the object that impact presentation. Consider whether expectations of current users align with interactive conventions of your object.
- **Computing Environment** – Document the original (or recommended) computing environment/platform. Include information about what software and hardware were originally recommended for use with your CD-ROM.
- **Relationships & Dependencies** – Document any relationships and/or dependencies required for the object to function, including any applicable versioning information (example:

Quicktime 2.1). Please note whether software installers or dependencies are included on your CD-ROM, as well as any versioning information.

- **Disk Imaging & Forensics** – Report any information gleaned from forensic analysis (other than environment and tech specs). If a forensic disk image does not yet exist, create one, document relevant file identification information and processes and software used to create the image.
- **Render Method: Emulation and/or Legacy Hardware** – If you created an emulated version of the object, document your process.
- **Renderability** – Once you are able to view the media object using emulation and/or legacy hardware/software, describe the experience and degree of success. If you viewed the media object using both rendering methods (emulation and legacy hardware/software), compare them.
- **Challenges & Recommendations** – Create an account of your experience rendering your CD-ROM, list challenges you faced, and create a list of recommendations for successful playback based on your experience. What is the optimal rendering setup for this CD-ROM?
- **Physical Preservation** – Make recommendations for physical preservation of optical media (generally speaking) and provide condition information.
- **Conclusion** – What are some general takeaways from this exercise? What is your impression of degree of future success in viewing and interacting with this media object?

## Assignment Two

### Student's Option

**April 5th, Friday – Final project proposal due**

**May 7th, Tuesday – In-class presentations**

**May 10th, Friday – Final project due**

Choose a project from the below list. Write a project proposal that includes: Overview of your project, proposed protocol / steps to be taken (include estimated date of completion for each step), learning objectives you anticipate taking away from the project, and the proposed format of your report (it would be helpful to include an outline). Students will present their work on May 1 and the final product is due May 7th. Your final project must include a full bibliography of literature and other resources (personal email communication, interviews, videos, websites, etc) that informed your project.

1. **Write a 15-page research paper** on a subject of interest to you, drawn from one of the themes from the 14 classes.
2. **Build and program a device with an Arduino (or other microcontroller) and one sensor, and write a comprehensive written preservation plan for the device you created** (software, hardware, behavior documentation, storage, etc). Anticipate and review the various preservation strategies that might be employed: emulation, reverse-engineering / re-creation, hardware replacement, etc. Describe the potential and limitations of each strategy. Students may work alone or in groups of two or three, maximum.
3. **Create a GitHub website (Git Pages) that will be a valuable public resource** on a subject of interest to you, drawn from one of the themes from the 14 classes. Students may work alone or in groups of two or three, maximum.