Digital Literacy
Example Assignments and Resources for Support

This document outlines suggestions for assignments that could be incorporated into a course to help students enhance their Digital Literacy skills. The Digital Literacy oversight committee envisions that a DL course would include two of these kinds of assignments over the semester. (You may have already integrated some assignments like these into your teaching already.) Many of these assignments could be part of courses in Creative Arts, Humanities, Social Sciences, or Sciences.

**Discipline-based Digital Research**
- Give instruction about how to effectively search for knowledge and artifacts in your academic disciplines (e.g. finding published articles using online databases, assessing the reputation of the source, using google to find information and then assessing the reliability of that data). Liaison Librarians can provide us with databases and other tools for students by discipline.
- Ask students to write a research paper based largely on digital sources
- Ask students to write a supplemental document explaining how they used the digital tools to find these sources, how they determined the quality of the information source, and to give examples of searches that yields poor quality sources and how they determined that the sources was not sufficiently authoritative
- Base a homework on requiring students to use the [departmental research guide provided by the Library](#) and to reflect on which resources they used, how confident they are of the content, and how they came to that decision. For example, the [Philosophy guide](#) lists disciplinary databases provided by Brandeis Library and students should be encouraged to dig into these research materials and document their process. Faculty can work with the library staff to incorporate additional relevant resources.

**Discipline-based Digital Tools**
This will vary widely between departments. Possible examples are included below:
- Psychology -- train students in using a professional Statistics package and give them assignments to analyze a fairly large dataset using these tools. They should also write up a supplemental document reflecting on their experience of using the tool. Which tests did they choose to run and why? What concerns might they have about the quality of the results (e.g. are they sure the population data is normally distributed?)
- Music -- teach students the fundamentals of Musical Notation software (like Sibelius or Finale or MuseScore) and give them an assignment to arrange a song, or compose a piece, or transcribe a recorded concert using that software. Ask them to reflect on the
tool and explain which features they used and how they learned about those features. Ask student to peer-review each others reflections (so as to learn from each other) and reflect on that experience in their paper too.

- **Chemistry** -- ChemDraw is a digital tool that allows students to prepare lab reports incorporating structures into the report. Students will learn how to use the tool and incorporate the results into their lab writing.

- **Russian** -- Russian National Corpus ([http://www.ruscorpora.ru/en/](http://www.ruscorpora.ru/en/)) to look for patterns of language use. The corpus of Russian is a reference system based on a collection of Russian texts in electronic form. Students will learn how to access, search, and compare texts through a database and analyze their findings on how language has changed over time.

- **For Disciplines using data analysis**: Teach the basic elements of Stata to for quantitative analysis. An assignment can ask students to download a dataset from a repository (e.g. ICPSR, World Bank, OECD), load it into Stata, run descriptive statistics, and run bivariate analyses. Students present their tables/graphs and describe the results. Ask students to reflect on how the tool can help others replicate their analyses.

**Creative Digital Media Projects**

There are a variety of possibilities for integrating creative digital media projects into classes. The best starting point is a consultation with Mark Dellelo, Manager of Sound & Image Media Studios (SIMS) in the Library, who can help you think about the ways in which your students might use audiovisual media to structure an argument or narrative around specific topics in your course. Given that digital media editing skills require a considerable amount of hands-on support in order to master, as well as limitations around space and equipment, these sorts of projects are recommended only for small class sizes (around 20 students or fewer). Advance notice of a full semester is highly encouraged for these assignments as the library's capacity to support them is finite. This list of project options is arranged by ease of implementation, from the easiest to the most challenging:

- **Audio Storytelling, or “Podcasting.”** Select a topic such as a text, historical figure, event or historical problem that might lend itself well to exploration in a narrative, conversational, or interview-based format. Library staff can provide consultation about research, scriptwriting, and interviewing strategies. An instructional session in SIMS can introduce students to recording and editing techniques. The SIMS Manager can help coordinate equipment use, software use, peer tutoring, and technical support.

- **Photo Essays or Video Essays.** Select a topic that might lend itself well to visual analysis (e.g., a film, or a historical event that has been documented with archival photos). Library staff can provide consultation about research and scriptwriting strategies. An instructional session in SIMS can introduce students to techniques of gathering and sequencing visual material, recording a voice-over, and adding text overlays. The SIMS Manager can help coordinate equipment use, software use, peer tutoring, and technical support.

- **Video Production.** Select a topic that might lend itself well towards exploration through a series of talking head interviews or through a dramatization. Library staff can provide
consultation about research and scriptwriting strategies. This option would require
multiple instructional sessions in SIMS to cover shooting, sound recording, and editing
strategies. The SIMS Manager can help coordinate equipment use, software use, peer
tutoring and technical support. However, due to equipment limitations and technical
complexity, grouping the students into teams and ensuring that one member of the team
has previous familiarity with video production is advisable.

**Google Site Design**
This requires faculty support since faculty may not know how to build a website themselves, but
we can create online resources with some kind of help-desk like backup for faculty that want to
add this assignment to their course. Esther holds Google Sites workshops through the Library
Calendar, which students can attend for extra help.
Have students use google sites or wix or another high level tool to build a website to present
their research results from a paper they have written for the class. This can be a group project.
Create a class website which has links to all of the student websites and ask them to review 5 of
their peers sites.

**Digital object biographies**
Faculty members can ask students to trace the biography of a digital object (e.g. a movie,
image, meme) from its origin through its publication and modification in various venues. This will
help them learn to evaluate the authenticity of a digital document using tools such as Google
Image search and the Internet Archive.

**Subject-Specific Research**
Faculty members can invite liaison librarians into their course for a session on how to effectively
do research in a given field. This can include instruction on databases and keyword searches
for scholarly content as well as search strategies and subject-specific tools. Students can
complete a short assignment of identifying keywords or relevant articles to the course content,
or it could be linked to a larger research assignment already planned in the course.

**Citation Management**
Students can create a shared class-library of citations through the tool Zotero. Librarians can
teach a class workshop on how to use Zotero, or students can attend one of the many Zotero
workshops offered throughout the year on the Library calendar.
Zotero allows for clipped articles, websites, images, videos, etc to be added to the library. There
is also a section for notation of how and why to use the resources. Zotero is a free open-source
tool, so students can take their library with them after graduation to reference materials while
working in the field.

**Copyright**
Students can explore issues of copyright as relates to their field. This could be a potentially
interesting topic for Music and Fine Arts. Students can visit the Creative Commons archive and
identify several objects with their specific copyright. They could also examine some existing legal battle over copyright in their discipline. Copyright could also be a module if students are creating presentations, a website, or including images in a paper. Contact Esther Brandon, Digital Literacy Specialist, or your Liaison Librarian.

**Digital DEI**

Students can explore the issues of “digital redlining,” or whose voices get promoted in digital content (online journals, scholarly websites, blogs, twitter, news organizations). Students can explore the existing scholarly voices in their field, and discover who is represented and who is excluded. This could be a module for any course that requires a research-based assignment. Contact Esther Brandon, Digital Literacy Specialist.

**Online Exhibits**

Any course that examines physical objects could consider creating an online exhibit. The class could partner with the Archives and Special Collections Librarians to learn about how to catalogue objects (even digital ones) and enter in metadata (providing additional background information about each object and giving credit to the author). Google Sites allows for various sharing option, so the exhibit could be class-only, Brandeis-only, or public.

**Online Mapping**

- **GIS**
  - Alex Willett, GIS & Social Sciences Librarian, can provide course-integrated instruction sessions, individual and group consultations, and follow-up GIS support to assist your students with developing stronger data and spatial literacies through the use of GIS. Learn how to create maps, explore the spatial relationships of data sets, and so much more.

- **Fusion Tables**
  - Fusion tables is a fast and easy way to teach mapping to students.
  - Esther Brandon, Digital Literacy Specialist, can teach a Fusion Tables workshop in 40-50 minutes
  - Students will work together to create a class-map that allows for basic analysis of the information mapped
  - It is particularly interesting to examine trends over time or across multiple locations
  - Maps are shared by invite only or publically via a link

- **Google Maps**
  - Google Maps allows you to create your own map with your own individual text-bubbles
  - GMaps has a layering tool, so multiple students can work on the same map with different data points that can be displayed or turned off with a click.
  - The map can be shared individually or publically via a link
Esther Brandon, Digital Literacy Specialist, can teach a GMaps workshop in 30-40 minutes.

**Online Presentations/Discussions**
Brandeis has a new tool called Voicethread, which is linked to LATTE. Students can create presentations that are a mix of video, audio, powerpoint, images, etc, where students can narrate over the presented objects. Viewers can stop the Voicethread at any time to provide a time-stamped comment. Comments can be done by text, document, voice recording, or video by computer, phone, or tablet. Other viewers or the creator can respond back, and then then after the conversation has finished, the Voicethread will return to the main content.

Esther can give a Voicethread workshop in 40-50 minutes. Contact Esther Brandon, Digital Literacy Specialist.

**In-Text Annotation**
Linked to LATTE, Perusall is a tool students can use to make group annotations for course readings. Any instructor that uses PDF readings can add this tool to their LATTE course. There are a wide variety of assignments instructors could utilize with Perusall. Students could be asked to make a certain number of original posts (analyzing a specific idea, explaining a concept and providing examples, making connections to other readings, critiquing the author's work, asking a question, etc) and reply to other's comments.

Instructors who teach more than one section of a course could combine all sections for a Perusall reading, or keep them separate for section-specific discussions. Contact Esther Brandon, Digital Literacy Specialist.

**MakerLab**
MakerLab staff can provide course-integrated instruction and workshops on the following topics. Contact Ian Roy.

- How data moves
  - How filesystems work
  - Data in transit, how routers work
  - How encryption works
  - How networks work, and how the internet works.
  - Data lifecycle - active research data
  - How to run your endpoint
  - Lifestyle adjustments about how to curate your digital footprint
    - Social media presence, making sure your digital double is representative
    - Examples: When I press a button on my phone and you see what I type with your eye - there is a lot going on between my finger and your eyeball.

- How Stuff is Made: How low the barrier into the engineering and design conversation:
  - Digital fabrication Tools - Traditional VS Additive manufacturing
    - Things that run on G-code: 3DP, Lasercutter, CNC
    - Material possibilities
    - How things are drawn in 3D (CAD)
- 3D Modeling
- Sketchup, Autodesk Fusion 360, Solidworks, TinkerCad, Antimony, OpenScad, Blender,
  - Examples: Creating custom molecules for studying active sites on proteins.
- How computer vision (3D scanning) works
  - Digitizing anything from the real world to the digital world
  - Structured Light, LIDAR, Photogrammetry, CMM
    - Artec, Skanect, Remake, Photoscan
  - Examples: Creating duplicates of ancient artifacts at 0.10mm full color accuracy - enough resolution to perceive fingerprints from 3,000BC that no one knew were there.
- How you give a robot a command and have it complete an action
  - How control theory works - How to tune your robots
  - PID control theory: “Feel what’s going on in the graph”
- Pilots as a Service (PaaS)- The MakerLab can rent you not just a drone, but a pilot to fly the drone, file a flight plan and insurance, and help with data processing.
- Building Virtual Environments in Unity and Unreal
  - Bring real world experiments into Virtual Reality
  - 3D Scan buildings or interior spaces and create virtual models of the space (or 3D Print physical models)
- Robotics
  - programming
  - board selection / sensor selection / component selection
  - wiring layout
  - use-case research (pairing components, environmental factors)
  - battery
    - battery charging, battery maintenance, type selection, C ratings
  - radio control options
  - video transmission
  - PID, filtering, understanding curves, motor mixing
- 3D Printing Modules - Creating physical copies of digital files
- 3D Scanning Modules - from small objects to large buildings
- VR/AR modules - how to create virtual environments, bring your class on a fieldtrip to the great barrier reef, or create a platform for research, or democratize access to places or objects
- Designing stuff and getting it made: Building a robot, or a prototype, or the pitches and branding around those.
- How to build a pitch deck for your product (software or hardware) to get VC funding - or how to develop and work on your elevator pitch.
- How to create a Runbook or Screenshoot workflow tutorial guide for a specific piece of Hardware or Software or for a specific technical workflow.
  - How to communicate a step by step digital process or workflow
The Art of the Pitch: from elevator to pitch deck
MakerLab intro and overview: What tools we have, and how you can use them
3D Printing training
3D Printer training - specifically how one model works
3D Scanning Training
Soldering Training
How to build a Custom PC
Intro to Troubleshooting Theory: Systematic Fault Isolation
Intro to Unity3D world building
Design Thinking Activity
How Racing Drones work
How to get your FAA 107 Pilot's License
Maker Movement Applications in the Medical Field

Digital publishing