

The University of Iowa
School of Library and Information Sciences
Fall 2019

Course	SLIS 5020: Computing Foundations
Course Schedule	Mondays 4:30-7:15
On Campus	3092 Main Library
EXE Section	https://uiowa.zoom.us/j/770505423
Instructor	Lindsay Mattock
Office Location	3072 Main Library
E-mail	lindsay-mattock@uiowa.edu
Office Hours	by appointment, schedule at lindsaymattock.net/officehours.html

Course Overview

In this course, we will begin to break into the “black box” of the computer. The LIS field demands professionals who are competent and comfortable working with digital platforms and tools. Computing is more than simply sending email, building webpages, and creating documents. In this course, we will utilize the Raspberry Pi to fully explore hardware, software, and the tool that we call “the computer.” As a survey course, we cannot possibly address every technology that you will encounter in your practice. Instead, the goal of this course is to provide you with an opportunity to explore various aspects of computing and to critically engage with hardware and software.

To be successful in this course you must: tinker, play, build, make, tweak, experiment, hack, and break things. You will push your boundaries and the boundaries of the technology, ask many questions of yourself and your peers, be confused and/or frustrated and/or lost, dig yourself out of those traps and think deeply about the digital tools that you will engage with during your time here at SLIS, in your professional posts, and in all other aspects of your life. This course is not about gaining mastery of particular tools, but rather building the skills and experience that will allow you to be comfortable and confident engaging with and evaluating new and familiar technologies.

Course Objectives

This term you will:

- Examine the way that technology is employed in LIS context and in culture and society
- Build an understanding of how technology works by working with digital tools
- Reflect on the development of your personal digital literacy
- Develop confidence and strategies for engaging with new technologies
- Build empathy and examine the connection between emotion and learning technology

Required Technology

Each student must purchase a Raspberry Pi by the **third week of class**. The Raspberry Pi is a credit card sized computer that will allow us to build servers and webpages, experiment with programming in Python, and work with content management systems like WordPress. If none of these terms are familiar, do not despair - the Raspberry Pi is a blank slate from which we will work together.

You will each need to acquire a Raspberry Pi and a few essential pieces of hardware to make it functional. You'll want to have your Pi in hand for our third class meeting - September 16th.

Students have the best experience with a starter kit, like this one

<https://thepihut.com/collections/raspberry-pi-kits-and-bundles/products/raspberry-pi-3-starter-kit> that contains the elements that you need:

1. Raspberry Pi Model 3 or Model 3 B+
2. 16G or larger Class 10 Micro SD Card (preferably with NOOBS and Raspbian installed)
3. Power supply (5.1V 2.5A)
4. HDMI cable (or HDMI output to an input appropriate for your monitor)
5. Raspberry Pi 3 heatsink kit (recommended)
6. Raspberry Pi 3 case (optional)

Kits and components are also available through online retailers such as Allied Electronics (alliedelec.com), SparkFun (sparkfun.com), or Amazon. **I also have a number of RPi Kits available to borrow for the term. Please contact me to reserve a kit.**

In addition to these components, you will need access to a monitor with a HDMI port (or the appropriate adaptor) and a USB keyboard and mouse. If you are taking the on-campus version of the course, the monitor, HDMI cable, keyboard, and mouse will be available for you in the classroom.

Required Textbooks

There are no required texts for this course. The required readings and other materials for each week are available electronically on the course ICON site.

Semester at a Glance

Week 1 August 26	Introduction to the Course
September 2	Labor Day
Week 2 September 9	Binary, Bits, and Basics
Week 3 September 16	Introduction to Raspberry Pi
Week 4 September 23	HTML + CSS
Week 5 September 30	HTML+ CSS
Week 6 October 7	XML + XSLT
Week 7 October 14	XML + XSLT
Week 8 October 21	Python
Week 9 October 28	Python
Week 10 November 4	LAMP
Week 11 November 11	LAMP
Week 12 November 18	LAMP
November 25	Thanksgiving
Week 13 December 2	WordPress
Week 14 December 9	WordPress

Coursework and Grading

Flipping the Classroom

This course uses a “flipped classroom” model. This means that you will complete the assigned reading and watch the weekly lectures before coming to class each week. Then during our scheduled class time, we will work together through a series of projects that build on the lecture materials. The model reverses the traditional classroom, using class time to complete the activities that that would more traditionally be assigned as individual projects to be completed at home. Given that everyone has a different experience level and comfort with technology, this model allows you to move through the lecture materials at your own pace and to apply what you have learned while completing a series of projects with the support of your professor and peers.

Gamifying the Assignments

The assignments and grading have also been designed to allow you to customize your experience in the course. Instead of grading your assignments on the traditional grading scale, this course has been modeled on an RPG or Role Playing Game. Your quest is to build your knowledge and skills as you complete a series of projects over the course of the term. While some tasks are required, you will choose how you earn points each week to level up your “character.” At the end of the term, the level you have reached determines your grade.

The Rules of the Game

At the beginning of the term, you will receive a link to your “character sheet.” This spreadsheet will help you to track your progress as you complete the projects this term. There is a new sheet for each project, divided into four different categories of activities:

- **Knowledge:** readings and lectures that will introduce key concepts and information
- **Skills:** practice-based exercises that will help you to demonstrate your knowledge
- **Reflection:** opportunities to examine your attitudes towards technology and computing and reflect on your learning
- **Collaboration:** recognizing your work together as classmates to complete the course projects

Each category includes required activities that must be completed as part of the project, but to earn the remaining points, you may choose from any of the extra activities in the list. **Note: If you fail to complete a required activity the point value will be subtracted from your total score.**

The following tables list the expectations for each of the required and extra activities:

KNOWLEDGE, Required

Activity	Requirements	Points
Reading Response	Complete a short quiz after watching the lecture and reading the required materials each week. The quiz includes multiple-choice, short answer, true/false questions. You may take the quiz as many times as you would like. Full credit will be awarded to all responses that fully articulate your understanding of the concepts.	20

KNOWLEDGE, Extra

Activity	Requirements	Points
Extra Reading	Select an extra reading and post a summary and response on the Knowledge discussion board. The reading must be from a scholarly, peer-reviewed book or journal article. Your post should include a citation for your selection, a brief summary, and a description of why you think that this piece is relevant to the class and/or the current project. Responses may be written or recorded using audio or video.	10
News Story	Share a relevant news story on the Knowledge discussion board. Your post should include a citation for the story and a link, a brief summary, and a description of why this news story is relevant to the class. Responses may be written or recorded using audio or video.	5
Technology Intro	Introduce a new (or new-to-you) technology on the Knowledge discussion board. Your post should include the name of the technology, a link to a relevant website, a description of the technology, and a discussion of how the technology is relevant to information professionals. Responses may be written or recorded using audio or video.	5
Choose your own	Imagine another activity that shares information on the Knowledge discussion board. You could create an infographic, a zine, an information visualization, or something entirely different. Be creative.	10

SKILLS, Required

Activity	Requirements	Points
Project Worksheet	Each project will include a series of questions that you must answer as you complete the project. At the end of each unit, you will submit a worksheet recording your responses to the appropriate link on ICON. As with the Reading Responses, incorrect answers will receive full points if you attempt to answer the questions to the best of your ability.	50 per week

SKILLS, Extra

Activity	Requirements	Points
Define a Concept	Write a definition for one of the key concepts from the readings, lecture, or projects in your own words and post it to the Skills discussion board. The post should include your original definition and an example illustrating the concept. Your post may be written or recorded using audio or video.	5
Rewrite Instructions	Was a section of the project instructions unclear to you? Rework a section of the instructions using new language and/or images. Your revisions should be posted as a written response on the Skills discussion board. The post should reference the page or step number where your revisions would be inserted into the instructions.	15
Complete the Challenge	Each project includes a Challenge Exercise (in a yellow box). Complete the activity and post your response to the Skills discussion board.	5
Write a Guide	Build a guide or "cheat sheet" for a student completing the current project. What quick tips, definitions, or code would you like to have at hand while completing the project? Your guide should be posted as a .pdf document to the Skills discussion board.	10
Choose your own	Imagine another activity that shares information on the Skills discussion board. You could, create a video demo, walk us through a new skill that you learned, demonstrate how to do something that wasn't covered in the project, build a model that illustrates a concept, or something entirely different. Be creative.	10

REFLECTION, Required

Activity	Requirements	Points
Weekly Check-In	At the end of our class session each week, you will complete a short survey asking you to reflect on how you are feeling at the end of the class session. This activity will allow you to reflect on your emotional response to the class activities and track how this response affects your learning each week. In addition, you will be asked to report something that you learned and where you still have questions. The survey will be completed on ICON during the last 10 minutes of each class session.	15 per week

REFLECTION, Extra

Activity	Requirements	Points
Share a Problem	Describe a problem that you encountered while completing the project and how you overcame the roadblock. Your post should reflect on the strategies that you used to move past the issue and reflect on how your emotional response to the issue impacted your learning. Your reflection should be posted to the Reflection discussion board and may be written or recorded using audio or video.	10
Share what you learned	Describe your major takeaways from the project. What did you learn and more importantly, how did you learn? Which of the class readings or activities were most impactful? When did your "ah ha" moment occur? Your reflection may be written or recorded using audio or video.	10
Choose your own	Imagine another activity that helps you to reflect on your learning experience and post to the Reflection discussion board. You could write a poem, draw a picture, pose questions about technology and LIS, write a letter to a future student about the project, or something entirely different. Be creative.	10

COLLABORATION, Required

Activity	Requirements	Points
Attend Class	All you have to do is attend class to earn your required points in this category. You should come to class prepared to participate with your classmates and work through the project materials.	10 per week
Earn Extra points	You are required to earn an additional 10 points from the Extra collaboration activities each week. How you meet this goal is up to you, you have three options, outlined below.	10 per week

COLLABORATION, Extra

Activity	Requirements	Points
Help someone	Work with another student to help to answer a question related to the project. You may respond to a question in the Collaboration chat or in-person. You will be asked to list the names of those that you helped on the Check-In survey at the end of each class session.	5
Ask for help	Ask for help from another student either in-person or using the Collaboration chat. You will be asked to list the names of those who helped you on the Check-In survey at the end of each class session.	5
Respond to a Forum Post	Respond to a post in the Knowledge, Skills, or Reflection discussion boards. Your post should contribute to the conversation, reflecting your personal observations or posing new questions.	5

Class Bonuses

The entire class can work together to earn a 10 point bonus at the end of each project by earning a minimum number of points. All students must complete a minimum number of points for the project to earn the bonus. For example, if every student earns 115 points completing the first project (all of the Required activities +10 points of Extra activities), the entire class will earn an additional 10 points. The goal for each project will be listed on ICON and on your individual character sheets.

Tracking Points

Your points will be tallied as activities are completed and tracked on your character sheet by the professor and teaching assistant. Activities will be marked as complete in ICON as they are tracked on your character sheet. You cannot edit your character sheet, but will be able to track your progress throughout the term.

Activities must be completed the date and time listed on the ICON site. Late assignments will not be accepted. You will find that the due dates for activities will follow a regular pattern and should be easy to follow as you become familiar with the course.

Leveling Up and Final Grades

You gain a new level for every 100 points that you earn over the course of the term. Your character sheet will help you to keep track of the points that you earn throughout the semester. Your final grade is determined by the level that you reach by the end of the term. If you earn all of the required points for each project, you will earn an A in the class. A+'s are earned by students that exceed the required number of points for the term. The remaining letter grades are determined as follows:

Level	Points	Letter Grade
17 or above	1700+	A+
16-15	1699-1500	A
	1499-1475	A-
	1450-1425	B+
14-13	1424-1300	B
	1299-1275	B-
12-11	1274-1100	C
10-9	1099-9000	D
8 or below	8999-0	F

Class Policies

Office Hours

Office hours will be held by appointment either in-person or via Zoom. You may schedule an appointment at <http://lindsaymattock.net/officehours.html>.

Assignment Deadlines

All assignments are due at the date and time listed on ICON. **Late assignments will not be accepted.** Timely submission allows me to fairly evaluate everyone work and ensures that you will remain on track to complete all of your assignments by the end of the term. I will make exceptions for extenuating circumstances, so please reach out to me if you believe that you cannot meet an assignment deadline. See the *Extenuating Circumstances and Incomplete Grades*.

Extenuating Circumstances and Incomplete Grades

While I believe that you must attend class each week to get the most out of this course, I understand that extenuating circumstances (illness, bereavement, etc.) may interfere with your ability to participate fully in the course. **It is your responsibility to contact me as soon as possible if such a circumstance will prevent you from attending a class session or completing the**

coursework according to the set schedule. I will then work with you to determine the best path forward for your particular situation. Incomplete grades will only be granted under these circumstances.

Academic Integrity

All students are expected to adhere to the standards of academic honesty. Citation is one of the key competencies of information literate individuals and as such, it is crucial for LIS professionals to learn the standards of and practice proper attribution. It is your responsibility to ensure that you are following these standards. Any student engaged in plagiarism, cheating, or other acts of academic dishonesty, will be subject to disciplinary action.

Plagiarism can be avoided by following the guidelines for proper citation and paraphrasing.

Sections 13.1-13.6 of the *Chicago Manual of Style 16th Edition*

<chicagomanualofstyle.org/16/ch13/ch13_toc.html> may be referenced for guidance. The University Writing Center <writingcenter.uiowa.edu> is another on-campus resource available to all students enrolled in courses at the University.

Acts of plagiarism will be evaluated by the professor on a case-by-case basis and will be reported to the department. No credit will be given for plagiarized assignments. Minor transgressions will be documented in the student's departmental file. If the case is deemed to be sufficiently egregious, the offence will be reported to the Graduate College and may result in expulsion from the program. Please review the policies in the *School of Library and Information Science Student Handbook* <slis.grad.uiowa.edu/current-students> and the *Graduate College Rules and Regulations* <grad.uiowa.edu/manual-part-1-section-iv-academic-standing-probation-and-dismissal>.

Students with Disabilities

Many students require accommodations in the classroom. I am happy to work with you to ensure that you have the best learning experience possible. If you are or may be requesting an accommodation, please speak with me privately and contact Student Disability Services, 3015 Burge Hall, 319-335-1462/319-335-1498 (TTY), as early as possible in the term. This will ensure that we both have all the tools and information that we need to have a successful semester working together. A comprehensive description of the services of that office can be obtained at <http://sds.studentlife.uiowa.edu>.

Reading and Topic Schedule

The reading schedule is subject to modification. The reading is to be completed before class each week. Please refer to ICON for the assigned readings and activities each week.

Week 1 | Aug 26 – Introduction to Computing Foundations

Introduction and selections from, Jenny Brandon, Sharon Ladenson, and Kelly Sattler, eds., *We Can Do IT* (Sacramento: Library Juice Press, 2018).

SEPTEMBER 2 – LABOR DAY

Week 2 | Sept 9 – Binary, Bits, and Basics

Charles Petzold, "Bit by Bit by Bit," *Code: The Hidden Language of Computer Hardware and Software* (Redmond, WA: Microsoft Press, 2000): 69-85.

Kenneth Thibodeau, "Overview of Technological Approaches to Digital Preservation and Challenges in Coming Years," *The State of Digital Preservation: An International Perspective* (Washington DC: Council on Library and Information Resources, 2002): 4-13.

Week 3 | Sept 16 – Introduction to Raspberry Pi

Ryan Heitz, "Meet Raspberry Pi," *Hello Raspberry Pi!* (Shelter Island, NY: Manning, 2016): 3-32.

Andrea Laue, "How the Computer Works," in Susan Schreibman, Ray Siemens, and John Unsworth, eds., *A Companion to Digital Humanities* (Malden, MA: Blackwell, 2004), 145-160.

Week 4 | Sept 23 – HTML + CSS

w3School.com, "HTML Introduction," https://www.w3schools.com/html/html_intro.asp

Tim Berners-Lee, "Information Management: A Proposal," (CERN, March 1989), <https://www.w3.org/History/1989/proposal.html>

Week 5 | Sept 30 – HTML + CSS

w3School.com, "CSS Introduction," https://www.w3schools.com/css/css_intro.asp

William J. Mitchell, "Recombinant Architecture," in *City of Bits: Space, Place, and the Infobahn* (Cambridge, MA: MIT Press, 1996), 46-105.

Week 6 | Oct 7 – XML + XSLT

w3School.com, "Introduction to XML," https://www.w3schools.com/xml/xml_what_is.asp

w3School.com, "How Can XML Be Used?" https://www.w3schools.com/xml/xml_used_for.asp

Anne J. Gilliland, "Setting the Stage" in *Introduction to Metadata, Third Edition*, Murtha Baca, ed. (Los Angeles: Getty, 2016):
<http://www.getty.edu/publications/intrometadata/setting-the-stage/>

Week 7 | Oct 14 – XML + XSLT

w3School.com, "XSL(T) Languages," https://www.w3schools.com/xml/xsl_languages.asp

"Introduction: To Classify Is Human," in *Sorting Things Out: Classification and Its Consequences* (Cambridge, MA: MIT Press, 2000), 1-32.

Week 8 | Oct 21 – Python

PFS Python Brochure <http://brochure.getpython.info/media/releases/psf-python-brochure-vol.-i-final-download.pdf/view>

Andromeda Yelton, "Political and Social Dimensions of Library Code," and "Learning to Code," *Library Technology Reports* 51, no. 3 (April 2015): 22-25 and 26-30.

Janet Abbate, "Software Crisis or Identity Crisis? Gender, Labor, and Programming Methods," in *Recoding Gender* (Cambridge: MIT Press, 2012): 73-111.

Week 9 | Oct 28 – Python

Safiya Umoja Noble, "Challenging the Algorithms of Oppression,"
<https://youtu.be/iRVZozEEWIE>

Safiya Umoja Noble, "Conclusion," and "Epilogue," in *Algorithms of Oppression: How Search Engines Reinforce Racism* (New York: New York University Press, 2018), 171-186.

Week 10 | Nov 4 – LAMP

Ed Krol, "What is the Internet" and "How the Internet Works," in *The Whole Internet: User's Guide and Catalog, Second Edition* (Sebastopol, CA: O'Reilly, 1994): 13-21 and 23-34.

Week 11 | Nov 11 – LAMP

Janet Abbate, "From ARPANET to Internet," in *Inventing the Internet* (Cambridge, MA: MIT Press, 1999): 114-145.

Week 12 | Nov 18 – LAMP

Janet Abbate, "Popularizing the Internet," in *Inventing the Internet* (Cambridge, MA: MIT Press, 1999): 181-220.

NOVEMBER 25 – THANKSGIVING

Week 13 | Dec 2 – WordPress

Kyle M. L. Jones and Polly Alida-Farrington, "Getting Started with Wordpress," and "Guest Pieces" *Library Technology Reports* (April 2011): 8-15 and 34-60.

Janet Abbate, "The Internet in the Arena of International Standards," in *Inventing the Internet* (Cambridge, MA: MIT Press, 1999): 147-179.

Week 14 | Dec 9 – WordPress

Ashley Hinck, "Digital Ghosts in the Modern Classroom," *Hybrid Pedagogy*, March 29, 2018: <https://hybridpedagogy.org/digital-ghosts-modern-classroom/>

Yu-kai Chou, "Gamification to Improve Our World," <https://youtu.be/v5Qjuegtiyc>.