Creating Web Mashups

LIS 3/490WP | Spring 2013

# General Information

**Instructor:** Jeff Ginger, PhD GSLIS candidate  
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**Office Hours:** every day after class (for up to 30 minutes), and by appointment, arrange in person or via text/email

Class takes place in **Room 12A** Library and Information Science Building (**LISB**), the smaller computer lab in the basement, more commonly known as the LRL, on **Mondays** and **Wednesdays** from **1:00-2:20p**.

# Overview

This course provides an introduction to advanced web development through the creation of web mashups. Students will integrate commonly used open source and proprietary tools, platforms and resources to make and remake a variety of interactive and dynamic web applications and interfaces. Concepts covered include: design fundamentals, reverse engineering, working with databases, web service infrastructures and protocols, and both server and client side programming languages. Students will have an opportunity to gain familiarity with the back-end of content management systems and to use common toolkits.

The class will take place in a studio format with only one short(er) lecture a week and a great deal of self-guided and collaborative lab activities. Assignments will occur within the context of three main units, each featuring a major theme of the class, but students will have various opportunities to explore additional reading concepts and guest speaker topics through homework assignments. In true mashup style, the class will exemplify learning through (re)appropriation, collaboration and experimentation.

## An Incomplete List of Take-Homes

Students can accrue several resume-caliber or noteworthy skills and experiences throughout this course. Learners will:

* Reinforce their ability to code in **HTML5** and **CSS3**, as well as make use of **XML** and **Javascript** (jQuery, client-side)to move beyond the basics to craft dynamic, rich, feature-driven websites
* Additionally, they will dig into **PHP** (a server-side scripting language) to work with **databases** (MySQL, MyPHPAdmin) and learn the insides of **Content Management Systems** (Wordpress, with opportunity for Drupal, Joomla, Omeka and more).
* Gain familiarity with web development software including **open source** (Aptana Studio, FireFTP) and **proprietary** (Dreamweaver, <oXygen/>)
* Absorb some essential principles of **graphic design** and **information science**
* Explore **usability** and **accessibility** standards and expectations
* Pursue **real-world working projects** for community organizations to deploy web mashup solutions
* Learn about the **political** history of programming and the web, and why it matters now
* Confront important issues of ethics and design like **copyright** and **power**
* Make a **website development portfolio** to represent yourself in the future

# Expectations

Important things you should know.

## Requisite Experience

**Students should enter the class with at least intermediate computer skills.** This means either experience with web design (XHTML, CSS), scripting (Flash ActionScript, PHP, JavaScript, etc…) or full-fledged programming (Python, Visual Basic, C++, etc…). *I expect experience with at least one of these*.

**I expect you to be willing and able to write**. While we won’t have any big papers some assignments will involve writing. You’ll always have to be able to describe and evaluate what you do in your future job, I plan to attach the writing you do directly to course assignments and literature. Most of this will take the form of *short* assignment descriptions and critical responses to readings or speakers.

**Self-driven study**. Many assignments in this class leave a substantial amount of decision-making and topic-choice work up to the students. You will need to be flexible and willing to go out and pursue questions you might have as well as independent enough to propose ideas. In some ways this class will feel like an independent study. Try answering questions on your own first, and then talk to me. *Google is your friend!*

## Workload

As you know, this is a 3 hour class, which means we’ll meet for 3 hours of class time each week and I’ll be expecting around 3-4 hours of out of class work time from you per week, with some variation depending on where we are in the semester. I know you all lead busy lives and have packed schedules, I’ll do what I can to remain sensitive to this but still ensure a productive class. If you are new to programming you may have to spend additional time exploring and practicing.

## Attendance

**Show up to class**. Seriously. Your grade for attendance will be rolled up into participation. If you don’t show up you clearly can’t participate. If you miss a class here or there for sickness, death in the family, or other kinds of emergencies you should be fine. If you miss enough class to impact your performance and contribution your grade will suffer.

## Participation

Class will involve some discussion and group work as well as minor presentation of ideas. You’ll be expected to be engaged in all of this, at very minimum listening and responding, and for a grade higher than a C also sharing and questioning. Specific examples include:

* Asking questions when you are confused or when you think that something is incorrect.
* Answering questions, whether they are asked by the instructor or students.
* Providing your analysis or opinion on class readings during class discussions.
* Contributing during in-class exercises.
* Visiting me for office hours counts for participation too, but you should still engage in class.

The more people you benefit by your participation, the more credit you get. Come to class with quotes or notes from readings you’d like to talk about, or questions you’ve run into.

**Don’t be afraid to ask “dumb” or “basic” questions.** Often class moves too fast or nomenclature goes undefined. Some of the best students I’ve ever had are those who are vocal and ask me to slow down and better explain. Often others will be wondering the same thing, but are too afraid to ask.

## Flexibility of the Course

This course is designed to meet students' practical needs and therefore has a flexible structure. This means that as your instructor, I am not only open to your suggestions, but strongly encourage them. If you have feedback or preferences, please let me know, either publicly or privately. You must realize, however, that **this means our schedule, and even our assignments, may change over the course of the semester**. I’ll do my best to fit the course to the needs of the given cohort and stay organized while doing so. In other words, this class is **not rigid, but responsive**.

Additionally, many concepts in this class will be interpretive and explorative. **If you are a person who prefers tests with the ‘right answer’ or prefer the absolute truth found in mathematical certainty I am not a good instructor for you**. We will be working with fluid and messy concepts and on projects that will have many unknown variables that require students to shift perspectives.

## Grading

Grades are a part of the certification aspect of attending a university: a fundamentally necessary but secondary function, they are intended to be a kind of tool that encourages and reflects learning. I don’t want you to get lost in concern about your grade, but also want you to know this isn’t going to be a blow-off course. Do the work, invest time and creativity and make strong contributions and you should do just fine. Your breakdown is as follows, and each assignment will have its own rubric:

* Participation (attendance, engagement and effort) – 10%
* Projects
  + Your Portfolio! – 15%
  + Beneath the Hood of Wordpress – 15%
  + CMS for a Cause [or] Open Final Project – 15%
* Lab exercises (15) – 15% (1% each)
* Homework (10) – 30% (3% each)

Assignments will be graded on a point-based scale that translates directly to its percent. For example, each homework is worth 3 points and I will take off in half-point increments. Each 24 hour period an assignment is turned in late (starting at the time it is due) it goes down half a point.

Undergraduates only have to do half of the homework assignments – they can choose which ones. They will be graded in the same way, but scaled to 6% each.

## Academic Dishonesty

Any student who I, the instructor, discover to be cheating will automatically and immediately fail the assignment. It is the instructor's discretion whether to report the student's academic dishonesty to university level bodies. Remember, a violation of academic integrity can lead to a student being "suspended or dismissed" from the university ([*UIUC Student Code*](http://www.admin.illinois.edu/policy/code/) [*Article 1-Student Rights and Responsibilities, Part 4. Academic Integrity, § 1-403 Penalties for Infractions of Academic Integrity*](http://www.admin.illinois.edu/policy/code/article_1/a1_1-403.html)). The assignments in this class are very simple and straight-forward. It takes minimal effort to do them yourself. Even though they are simple, I hope you all realize the statistical improbability of writing the exact same answer with the exact same spacing, names, etc. as somebody else in the class. Cheating includes, but is not limited to:

* Copying someone else's work and turning it in as your own work.
* Someone else's work means someone else's work, whether it is the work of your classmate, the work of some anonymous stranger on the internet, etc. You may not copy someone else's work on the internet and turn it in as your own. I will be doing spot checks on the assignments that are turned in. Google is a very powerful tool for uncovering academic dishonesty. You have been warned.
* Copying someone else's work, making cosmetic changes, and turning it in as your own work.
* Turning in group work without crediting the group or
* Turning in individual work and crediting the group.
* Allowing another individual to copy your work, and turn it in as their work.

Any case of intimidation, coercion, etc., will be reported to higher authorities, either campus-level or law enforcement, depending on the situation. Please see the [UIUC Student Code](http://www.admin.illinois.edu/policy/code/) ([PDF](http://www.admin.illinois.edu/policy/code/studentcode_08.pdf)) for more details on [UIUC's policies on academic integrity](http://www.admin.illinois.edu/policy/code/article_1/a1_1-401.html).

## Readings and Required Materials

* There is **no textbook** for the class. All readings and tutorials will be available online via the course Moodle. You will need to become comfortable consulting online guides and reference sites for much of the material relevant to this class.
* We’ll discuss **software** more in-depth throughout the semester. **You won’t have to buy anything,** but I may ask you to install open-source or trial software.
* **Readings** will be listed in the schedule below. There are only a few required.
* I plan to have a couple **guest speakers** come in to present on topics as desired.

## Class Format

Typically class will go something like this:

* 5-10 minutes of **housekeeping** (assignment info, Q&A, cool things from the internet)
* One day a week 30-50 minutes of **lecture** and/or **discussion**
* All remaining time is open **lab time** consisting of exercises, individual and occasional group work; I will be actively buzzing around helping students
* You can stay after class to continue working with me for “office hours”

# Assignments

I will explain each of these in-depth upon handing them out.

* Big projects (3)
  + Your Portfolio!
  + Beneath the Hood of Wordpress
  + CMS for a Cause [or] Open Final Project
* Frequent lab exercises (TBA by week, 15 total)
* Provision homework list (TBA by week, 10 total, drop/skip 1)
  1. Mashup Report
  2. CSS Practice
  3. Refined Visual Mashup
  4. Concept to Code
  5. XML + Javascript Exercise
  6. Usability Consultant
  7. Deliverable Accessibility Report
  8. Paper Prototype
  9. Create a Game!
  10. Digital Literacy Reflection
  11. Ethics Reading Response

# Schedule

This is a provision list, it will most certainly change.

## Part 1 - Foundations

**Weeks 1-6** - The first few weeks will focus on ensuring all students have an understanding of how website code works and command over programming essentials (variables, loops, functions, etc). Students will be able to move (more or less) at their own pace and be given challenges appropriate to their interests and level.

### Topics

**Questions** - What is web development? What is a mashup? How do we make sense of design, information and interface?

**Lecture** – Introduction to Programming Web Mashups, Graphic Design 101, Organizing Information, The Design process

### Tasks

**Project** – Your Portfolio!

**Activities** – introductions, W3C quizzes, FTP, VM, visual mashups, mashup brainstorming, readings quiz, jQuery practice, possible speaker response

**Homework** – CSS Practice, Mashup Report, Refined Visual Mashup, Concept to Code, XML+jQuery, reading response

**Open Lab** - Review/learn HTML5, CSS3, Javascript and XML

**Required Readings** – Review Wikipedia articles - [Web Development](http://en.wikipedia.org/wiki/Web_development), [Mashups](http://en.wikipedia.org/wiki/Mashup_%28web_application_hybrid%29), and also review some [programming basics](http://cisnet.baruch.cuny.edu/holowczak/classes/programming)

### Tools

* Start with <oXygen/>
* Check out Dreamweaver CS6 30-day trial
* Firefox Plugins, Virtualbox
* Boilerplate, other web frameworks/assets TBA

## Part 2 – Website Play-Doh

**Week 7-11** - Once students have established a basic understanding of web programming and static website construction we can move into dynamic design. We will also begin to explore how to connect to external API’s and work within a developer community.

### Topics

**Questions -** Why data-driven websites? Why use an IDE? How does Wordpress work? What is this API stuff?

**Lecture –** Beneath the Hood of Wordpress, Usability and Accessibility, Digital Literacy, guest lecture of some kind

### Tasks

**Project** – Mashup with Wordpress

**Activities –** W3C quizzes, MyPhPAdmin quiz, make Xampp work,in-class usability test,modify Wordpress plug-in, guest speaker response, more

**Homework** - Usability Consultant, Deliverable Accessibility Report, Paper Prototype, Create a Game!, Digital Literacy Reflection

**Open Lab** - Learn PHP and MySQL via Wordpress

**Required Readings** – explore [Learn Wordpress](http://learn.wordpress.com/)

* Jenkins, H., Clinton, K., Purushotma, R., Robinson, A.J., and Weigel, M. (2006). “[Confronting the Challenges of Participatory Culture: Media Education for the 21st Century](http://digitallearning.macfound.org/atf/cf/%7B7E45C7E0-A3E0-4B89-AC9C-E807E1B0AE4E%7D/JENKINS_WHITE_PAPER.PDF).” Chicago, IL: MacArthur Foundation
* Horrigan, J. (2009). “[The Mobile Difference](http://pewinternet.org/Reports/2009/5-The-Mobile-Difference--Typology.aspx).” *Pew Internet & American Life Project.*
* Hague, C., Payton, S. (2010). “[Digital Literacy across the curriculum](http://archive.futurelab.org.uk/resources/publications-reports-articles/handbooks/Handbook1706).” Futurelab handbook.
* Ginger, J. (2013). [an [edited excerpt](http://jeffginger.com/dissertation/) from my dissertation of some kind]

### Tools

* Wordpress
* Aptana Studio 3
* phpMyAdmin, Xampp
* More web/design assets TBA

## Part 3 – Get Serious

**Weeks 12–15** – The end of the class will be the greatest opportunity for student-driven exploration and/or post-bachelors type projects. You will be able to either work in pairs with an existing community organization to implement a CMS solution or pursue a personal project.

### Topics

**Questions** – How can we use Content Management Systems (CMS) to create web mashups? How do we do this in the real world for real clients? Why should programmers care about ethics?

**Lectures** – Content Management Systems, Ethics and Design (snippet), possible guest lecture

### Tasks

**Project** – CMS for a Cause -OR- Independent Final Project

**Activities –** project check-ins, how to work with clients, speaker response, more

**Homework** – Ethics reading response

**Lab –** Open work time

**Required Readings**

1. Lessig, L. (1998). “[The Laws of Cyberspace](http://www.lessig.org/content/articles/works/laws_cyberspace.pdf).” Taiwan Net ’98 conference, 1998, 2-16.
2. *Choose one:* 
   * Winner, L. (1999). “[Do artifacts have politics](http://zaphod.mindlab.umd.edu/docSeminar/pdfs/Winner.pdf)?” Chapter 1 in *The Social Shaping of Technology.* Eds. D. MacKenzie and J. Wajcman. Buckingham: Open University Press, 28-40.
   * Jarrett, K. (2008). “[Interactivity is Evil! A critical investigation of Web 2.0](http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2140/1947).” *First Monday,* 3(3).
3. Gaylor, B. (2009). "[RiP! A Remix Manifesto!](http://films.nfb.ca/rip-a-remix-manifesto/)" (this is a full-length movie, do take the time to watch it!)

**-OR-**

1. Ginger, J. (2011). “[Filling in the Missing Box](http://www.facebook.com/note.php?note_id=484617766439).” *Unpublished*. January 06. See “[The Missing Box: The Racial Politics Behind the Facebook Interface](http://thefacebookproject.com/research/jeff/publications/missingbox.html)” for reference.
2. Noble, S. (2012). “[Missed Connections: What Search Engines Say About Women](http://safiyaunoble.files.wordpress.com/2012/03/54_search_engines.pdf).” Bitch Magazine.
3. Nakamura, L. (2008). “[Race, Class and Gender in Multiplayer Online Game Environments](http://www.youtube.com/watch?v=74di3xYOMRo).” *Talk for the Global media Research Center at SIUC*.

### Tools

* Basic: Other CMS (Wordpress, Gallery, Omeka, ComicCMS)
* Intermediate: Advanced CMS (Drupal, Joomla, Zencart)
* Expert: [Ruby on Rails](http://www.sitepoint.com/learn-ruby-on-rails/), [Visual Studio 10](http://msdn.microsoft.com/en-us/vstudio/cc136611)

# Previous Reading List

* Norman, D. (2004). “[Prologue](http://www.jnd.org/dn.mss/CH00_Prolog.pdf)” and “[Attractive Things Work Better](http://www.jnd.org/dn.mss/CH01.pdf)” in *Emotional Design: Why We Love (or Hate) Everyday Things.* New York: Basic Books.
* Shedroff, N. (1994) “[Information Interaction Design: A Unified Field Theory of Design](http://www.nathan.com/thoughts/unified/).” *Nathan.com*.
* Garrett, J.J. (2003) “[Meet the Elements](http://www.jjg.net/elements/pdf/elements_ch02.pdf).” Chapter 2 in *Elements of User Experience*. Indianapolis, IN: New Riders.
* Himanen, P. (2001). “The Hacker Work Ethic.” *The Hacker Ethic and the Spirit of the Information Age*. New York, NY: Random House, 1-15.
* Fischer, G. (2006). “[Beyond Binary Choices: Understanding and exploiting trade-offs to enhance creativity](http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1323/1243).” *First Monday,* 11(4).
* Nichols, D., Twidale, M.B. (2003). “[The Usability of Open Source Software](http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1494/1409).” *First Monday,* 8(1).
* Jarrett, K. (2008). “[Interactivity is Evil! A critical investigation of Web 2.0](http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2140/1947).” *First Monday,* 3(3).
* Dürsteler, J.C. (2010). “Solving Problems with Visualization.” *Inf@Vis*. Available online at <http://www.infovis.net/printMag.php?num=203&lang=2>
* Wroblewski, L. (2003). “Visible Narratives: Understanding Visual Organization.” *BoxesAndArrows.com.* Available online at <http://www.boxesandarrows.com/view/visible_narratives_understanding_visual_organization>
* Jones, H. (2009). “The Four Key Components of a Great Web Design.” *Webdesignledger.com*. Available online at <http://webdesignledger.com/tips/the-four-key-components-of-a-great-web-design>
* Jacobs, S. (2010). “A Beginner’s Guide to Website Copywriting.” *Webdesignledger.com*Available online at <http://webdesignledger.com/tips/a-beginner%E2%80%99s-guide-to-website-copywriting>
* Morkes, J. and Nielsen, J. (1997). “Concise, Scannable, and Objective: How to Write for the Web.” *Useit.com.* Available online at <http://www.useit.com/papers/webwriting/writing.html>
* Noack, S. (2010) “Five Goals to Strive for with Every Site You Design.” Webdesignledger.com. Available online at <http://webdesignledger.com/tips/five-goals-to-strive-for-with-every-site-you-design>
* Friedman, V. (2008). 10 Principles of Effective Web Design.” Smashing Magazine. Available online at <http://www.smashingmagazine.com/2008/01/31/10-principles-of-effective-web-design/>
* Vandelay Design. (2007). “21 Factors that Influence the First Impression of Your Website’s Visitors.” Vandelay Design.com. Available online at <http://vandelaydesign.com/blog/design/first-impression/>
* Vandelay Design. (2008). “What Makes Someone Leave Your Website?” Vandelay Design.com. Available online at <http://vandelaydesign.com/blog/design-process/why-visitors-leave/>
* Vandelay Design. (2008). “Blog Design: What Should Be Above the Fold?” Vandelay Design.com. Available online at <http://vandelaydesign.com/blog/design/blog-design-above-fold/>
* Richmond, A. (??). “HTML Standards Compliance – Why Bother?” *Web Developers Virtual Library*. Available online at <http://wdvl.com/Authoring/HTML/Standards/>
* Boudreau, D. (2002). “The Importance of Web Standards.” *Sitepoint.* Available online at <http://ingbert.org/courses/webtech/lis390w1a_fall2009/readings/boudreau_importance_standards.pdf>
* Vandelay Design. (2007). “Effectively Testing Your Website in Multiple Browsers.” Vandelay Design.com.  
  Available online at <http://vandelaydesign.com/blog/design/effectively-testing-your-website-in-multiple-browsers/>

# Accessibility readings

* WebAIM.org. (2010). “Introduction to Web Accessibility.” Available online at <http://webaim.org/intro/> AND Butler, S. (2010). “An Idiot’s Guide to Accessible Website Design.” *Webdesignledger.com* Available online at <http://webdesignledger.com/tips/an-idiot%E2%80%99s-guide-to-accessible-website-design>
* Smith, J. (2010). “The ADA and the Web: Concerns and Misconceptions.” *WebAIM Blog.* Available online at <http://webaim.org/blog/the-ada-and-the-web-concerns-and-misconceptions/>
* WebAIM.org (2010). “Web Accessibility Gone Wild.” Available online at <http://webaim.org/articles/gonewild/>

**Spend 30 minutes exploring**

* iCITA. (2010). “HTML Best Practices” *Disability Resources and Educational Services (DRES).* Available online at <http://html.cita.illinois.edu/>
* Caldwell, B., Cooper, M., Reid, L.G., Vanderheiden, G. (2008). “Web Content Accessibility Guidelines (WCAG) 2.0” *W3C.* Available online at <http://www.w3.org/TR/WCAG20/>
* Information Services Access Board. (2010). “Draft Information and Communication Technology (ICT) Standards and Guidelines (Section 508).” *Federal Register, Access-board.gov.* Available online at <http://www.access-board.gov/sec508/refresh/draft-rule.htm>
* Illinois Information Technology Accessiblity Act. (2002). “Implementation Guidelines for Web-based Information and Applications 1.0” *Illinois Department of Human Services, dhs.state.il.us.* Available online at <http://www.dhs.state.il.us/IITAA/IITAAWebImplementationGuidelines.html>