IST 402

Emerging Issues and Technologies
Section: 002
Credits: 3
Semester: Fall 2019

Course Information

Contact Information

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Instructor Availability & Communication

I work at the university full time but office hours are via Zoom and by appointment only. We will be establishing a Slack group as part of this class so I will be available there on a regular basis, otherwise email address is fine. My office phone is connected but it's not an effective way of reaching me.

Course Overview

The "Start up" culture is a world that lives by "move fast and break things". But how do you get into the start up scene? Or more importantly, what do you need to know in order to attract offers, and get your resume to stand out in a world where thousands of "IT workers" will graduate along side you.

You'll contribute to a large Penn State lead Open Source software project while building your digital identity as an IT professional on your journey to 1337 (elite). You'll improve online education while using things like version control (git), docker, web components, terminal, servers, screencasting and writing technical documentation.

You'll work with platforms like Github, Digital Ocean, HAXcms, IFTTT, Slack, Travis CI and YouTube. Prior programming knowledge is beneficial but understanding of technical concepts is more important.

Course Goals

By the end of this course, students will be able to…

- Have working knowledge of the technologies underlying most modern start ups
- Have setup and managed their own website and web server
- Have a YouTube playlist of explainer videos, blog posts, and unified digital footprint across multiple popular web services
- Get hands on with HTML, Web components, docker, YAML, Markdown, Node/NPM, LitElement and other technologies
- Connect technologies to larger industry themes like accessibility, brand management, user experience, open education, content management systems (CMS), progressive web apps (PWA)

Course Topics / Pacing

The current topics and pacing are my initial concept for this course. We will be taking a survey the first week of class to help shape the structure and order of the class. While specific technologies will be addressed, the timing may change based on the survey activity we do together. The parenthesis are what role this specifically touches on

- Week 1 - Establishing an online identity as an IT Professional (Vlogger)
  - Treating ourselves as brands, we will establish accounts and begin to setup the foundation for submission of assignments throughout the semester
- Week 2 – Git / Github / Contribution (All roles)
  - Collaborative participation on Github, understanding concepts of Git / version control and how teams leverage this technology for code and **non-code projects**
- Week 3 – Creating a website + server (Sys admin)
  - We'll use this for a blog and other experiments throughout the semester but we'll mostly demystify the process
- Week 4 – Terminal and Command line basics (Sys admin)
  - Step by step through the basic commands that system developers use to make everything work
- Week 5 - HTML / CSS / JavaScript (Front end)
  - The big three powering most of what you use today, a primer for reverse engineering. We'll use codepen to demonstrate how you can extend concepts of github into other realms
- Week 6 - Package management & Reuse (Front end)
  - NPM / Composer and how we stand on the shoulders of giants
- Week 7 - Web components & Progressive Web Apps (Front end)
  - HTML on steroids and the future of all application development, web or otherwise
  - We'll look at why this is transformative for application development and why all teams should be exploring it from an efficiency perspective. We'll also experiment with a powerful new platform called Stackblitz to demonstrate the power of Package management + compartmentalized HTML
- **Week 8 – Mid-term**
  - We'll have a mid-term based on the technologies and skills covered the 1st half
- Week 9 - Open source communities (All roles)

    - We'll review governance within open source communities, learn how different structures operate, see how to identify healthy vs stagnated open source communities, and learn when it's ok to use proprietary technologies.
- Week 10 - Content management systems (All roles)
    - A window into Drupal, WordPress, GravCMS, HAXcms to understand how they work, limitations, why they are popular, how their communities operate
- Week 11 – Accessibility (Front end / Developer)
    - What is it, why is it important, who benefits, how do we test for it?
- Week 12 - User experience (Front end / Designer)
    - Persona creation and testing using real world applications
- Week 13 - Server Virtualization technologies (DevOps)
    - Vagrant and Docker have changed the web forever, we'll explore these and surrounding applications and learn why they are so powerful
- **Week 14 – Thanksgiving Break**
- Week 15-16 Educational Technology, Open Education Resources (Edtech)
    - We'll look at the courses we're taking and its usage of technology, where this technology is usable, where it's not. Where accessibility can be improved or accounted for.
    - We'll look at OER / open course technology movements from philosophical, societal and technological perspectives.
    - We'll audit systems the instructor works on / has worked on to identify gaps in existing technologies, critique what's available and ideate about how technologies discussed throughout the class can be leveraged

Prerequisites

IST 210 and IST 220

Materials

Required Materials

There are no books required for this course but there is a required environment so we can work throughout the semester. We will be creating our own website and webserver to better understand how easy this is becoming in the modern marketplace.

We will be using Digital Ocean for hosting https://digitalocean.com at the **$5/month** plan. While you may purchase a faster server the minimum will handle what we are going to play with in labs and blogging. **You do not have to do this ahead of time, we'll work on this in a class lab after a few weeks of class.**

Purchase a custom domain name from https://hover.com. Domain names are typically $12.99 for a ***.com*** though you can get other ***.me*** and ***.online*** domains for as low as $5.

Both of these vendors were selected for simplicity / low cost, while being able to gain skills setting these up to establish our online identity. I doubt there are cheaper ones but if there are let me know. This should be approximately **$25 to $50** in fees depending on hosting level and domain name selected.

Reserve Materials

None

Course Technology

We'll be using lab computers to access websites though having your own laptop with you will make life more enjoyable because of password management and familiarity. A https://github.com account will be required as well as additional web service accounts that we'll setup throughout the course of the semester. There is no specialized technology requirement beyond a modern web browser that can access websites.

Web Materials Links

Online materials and lessons for this course are available at the course website: https://oer.hax.psu.edu/bto108/sites/ist402/

Technical Requirements

While not required, a laptop or personal computer will make completing assignments more enjoyable, though lab computers can be used to complete all assignments, the ones in the lab we are stationed don't have audio jacks, required for recording screencasts.

A modern web browser is required to access the course website as well as to complete lab assignments. Screen casting requires headphones or a microphone input in order to record your voice while speaking over top of the web material we'll review.

Student Expectations

Participation

Students are expected to attend class in order to practice, then complete the assigned labs. We will not take attendance but the labs will be more difficult to complete without understanding their context in class. Labs will be started during class time and then completed as homework if not finished by the end of class. After each lab there is a reflection in which students will be required to do a short blog post and video screencast explaining the topic.

During class I'll often ask for answering questions to help keep the conversation moving forward and understanding the topics we're reviewing. I'll also review video and blog post responses to the labs ahead of time and we'll critique / review a sampling of them at the start of the next class. This feedback is intended to help everyone learn and improve in their writing and public speaking; your participation in this group learning is appreciated.

Weekly Cadence

A suggested weekly path consists of the following:

- Wednesday - attending the ***three-hour lecture*** 4pm to 7pm and starting on the lab for the week

- Thursday – Finish lab that was began in class, anticipating to spend 1 to 2 hours on it.
- Saturday – Write an approximately 500 word blog post explaining the topic for the week and how it is used in industry. I won't be doing a word count but the 500 words is to help create constraints by which you have to accurately explain a highly technical concept in 5 minutes worth of time.
- Sunday - After writing is complete, record an approximately ***5 minute explainer video in the form of a screencast***, showing relevant links and explaining the concept as you would to a friend. Lay out some tabs in the browser you'll hop between ahead of time (not including your blog post) and try to free-form as much as possible. The goal is to get better at speaking fluidly about technology, you will not be assessed on your over usage of "umm" or "uhh" for example.
- Monday – Labs are due the following Monday after being assigned. **To submit your work do the following 3 steps:**
    - Publish the video to your YouTube channel
    - Write your blog post to the blog we will establish using in class, including in it your video embedded after the write up
    - Post a link to the blog post in the associated IST 402 Slack channel

Student Responsibilities

Students are responsible for completing their own work and maintaining an online identity for the duration of the course. This identity will be formed through blog posts, a YouTube channel, and establishing a website with a custom domain. Students are expected to attend class and participate in discussions as they emerge. They will also be expected to start on their lab while in class and then finish it after class as necessary.

Assessments

Assessment Plan

Assignments

There will be approximately **12 labs** in total for this course. Each lab stems from the topics discussed in class that week. The lab assignment is to be started in class and then completed as homework. Office hours, Slack and email may be used to ask for additional help but students will pair up to have someone directly to help with. This is to mirror the notion of "pair programming" technique so helpful in development to give an additional set of eyes to a problem.

After completing the lab, students will be required to demonstrate their knowledge gained by demonstrating it to others in the form of public media generation. This is a typical demonstration of knowledge that will be requested:

1. Write a blog post, approximately 500 words detailing what the technology discussed is, Who uses it, Why they use it, How others can use it. Write about the topic in a way that you'd be able to show to a non-technical friend and they could understand the gist of the idea and why it exists in the world.
2. Create a screencast video explaining the same thing, showing links and the assignment completed in lab time. This should be of the form of explaining what you did to a colleague, peer, or friend who might ask you what that technology is and wanting to find some additional authoritative opinions and documentation.
3. Publish this video to your YouTube channel in a playlist called IST402 explainers.
4. Publish your blog post, adding a link to your YouTube video into the bottom of the post
5. Submit a link to your blog post to the appropriate slack channel for the topic

The first few labs will deviate from this as we will be establishing the YouTube channel and place to blog as part of class work in the first few weeks.

Labs will be of equal point distribution throughout the course of the semester, see weight below for overall grade value.

Examinations

There will be one mid-term exam worth 10% of the grade, half way through the semester. This exam will consist primarily of multiple-choice to verify students are aware of what different technologies do as well as short-answer for how you would use these technologies in context.

Grading

Assignment Category	Weight
Labs Projects (12)	80%
Mid-term exam	10%
Final Lab Project	10%

Grading Scale

Letter Grade	Percentage
A	93%
A-	90%
B+	87%
B	83%
B-	80%

C+	77%
C	70%
D	60%
F	< 60%

Late and Missing Submission Policy

Late submissions will see a 10% penalty per day. Students will get the most out of the course by completing the assigned labs in order and in a timely manner as concepts build on one another.

Missing lab explainer posts / videos will be **marked as 0 points** and **no lab submission will be accepted after December 16th, 2019**.

Rubric Criteria

Labs and the final project will be assessed based on the following questions

- 50% -- Did you submit a written blog piece and screencast video piece demonstrating you did the lab work?
- 50% -- Does it accurately explain the topic and is the content?
- Was it submitted on time? (late is 10% off max per day)

Additional Policies

Disability Accommodation

Penn State welcomes students with disabilities into the University's educational programs. Every Penn State campus has an office for students with disabilities. Student Disability Resources (SDR) website provides contact information for every Penn State campus (http://equity.psu.edu/sdr/disability-coordinator). For further information, please visit Student Disability Resources website (http://equity.psu.edu/sdr/).

In order to receive consideration for reasonable accommodations, you must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: See documentation guidelines (http://equity.psu.edu/sdr/guidelines). If the documentation supports your request for reasonable accommodations, your campus disability services office will provide you with an accommodation letter. Please share this letter with your instructors and discuss the accommodations with them as early as possible. You must follow this process for every semester that you request accommodations.

Counseling and Psychological Services

Many students at Penn State face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

- Counseling and Psychological Services at University Park (CAPS) (http://studentaffairs.psu.edu/counseling/): 814-863-0395
- Counseling and Psychological Services at Commonwealth Campuses (http://senate.psu.edu/faculty/counseling-services-at-commonwealth-campuses/)
- Penn State Crisis Line (24 hours/7 days/week): 877-229-6400
  Crisis Text Line (24 hours/7 days/week): Text LIONS to 741741

Educational Equity/Report Bias

Penn State takes great pride to foster a diverse and inclusive environment for students, faculty, and staff. Acts of intolerance, discrimination, or harassment due to age, ancestry, color, disability, gender, gender identity, national origin, race, religious belief, sexual orientation, or veteran status are not tolerated and can be reported through Educational Equity via the Report Bias webpage (http://equity.psu.edu/reportbias/).

Academic Integrity

Academic integrity—scholarship free of fraud and deception—is an important educational objective of Penn State. To learn more about academic integrity at Penn State, please visit the Penn State Academic Integrity site. Academic dishonesty can lead to a failing grade or referral to the Office of Student Conduct.

Academic dishonesty includes but is not limited to:

- cheating,
- plagiarism,
- fabrication of information or citations,
- facilitating acts of academic dishonesty by others,
- unauthorized prior possession of examinations,
- submitting the work of another person or work previously used without informing the instructor and securing written approval,
- tampering with the academic work of other students,
- copying from other students, answer keys, or solutions sets, and
- having a tutor complete an assignment

How Academic Integrity Violations Are Handled

In cases where academic integrity is questioned, the Policy on Academic Integrity indicates that procedure requires an instructor to notify a student of suspected dishonesty before filing a charge and recommended sanction with the college. Procedures allow a student to accept or contest a charge. If a student chooses to contest a charge, the case will then be managed by the respective college or campus Academic Integrity Committee. If a disciplinary sanction also is recommended, the case will be referred to the Office of Student Conduct.

All Penn State colleges abide by this Penn State policy, but review procedures may vary by college when academic dishonesty is suspected. Information about Penn State's academic integrity policy and college review procedures is included in the information that students receive upon enrolling in a course. To obtain that information in advance of enrolling in a course, please contact us by going to the Contacts & Help page.

For More Information on Academic Integrity at Penn State

For the university and specific college information visit one of the following sites:

- Penn State Senate Policy on Academic Integrity

Course Copyright

All course materials students receive or to which students have online access are protected by copyright laws. Students may use course materials and make copies for their own use as needed, but unauthorized distribution and/or uploading of materials without the instructor's express permission is strictly prohibited. University Policy AD 40, the University Policy Recording of Classroom Activities and Note Taking Services addresses this issue. Students who engage in the unauthorized distribution of copyrighted materials may be held in violation of the University's Code of Conduct, and/or liable under Federal and State laws.

Help Resources

If you need technical assistance at any point during the course, please reach out on Slack or via email.

Student Responsibilities and Conduct

1. Students are responsible for online course content, taking notes, obtaining other materials provided by the instructor, taking tests (if applicable), and completing assignments as scheduled by the instructor. As a general rule, students should plan on spending at least three hours per course credit per week on the course.
2. Students are responsible for keeping track of changes in the course syllabus made by the instructor throughout the semester.
3. Students are responsible for monitoring their grades.
4. Students must contact their instructor (and teammates when working on any collaborative learning assignments) as soon as possible if they anticipate missing long periods of online time due to events such as chronic illnesses, death in the family, business travel, or other appropriate events. The instructor will determine the minimal log on time and participation required in order to meet course responsibilities. In the event of other unforeseen conflicts, the instructor and student will arrive at a solution together.
    a. Requests for taking exams or submitting assignments after the due dates require documentation of events such as illness, family emergency, or a business-sanctioned activity.

   b. Conflicts with dates on which examinations or assignments are scheduled must be discussed with the instructor or TA prior to the date of the examination or assignment.
5. Students are responsible for following appropriate netiquette (network etiquette) when communicating with their instructor and classmates. For reference:

   a. Email and Communication Strategies
6. Behaviors that disrupt other students' learning are not acceptable and will be addressed by the instructor.
7. For severe and chronic problems with student disruptive behavior, the following will be applied for resolution:

   a. Senate Committee on Student Life policy on managing classroom disruptions: Office of Student Conduct
   b. Penn State Principles

Military Personnel

Veterans and currently serving military personnel and/or spouses with unique circumstances (e.g., upcoming deployments, drill/duty requirements, disabilities, VA appointments, etc.) are welcome and encouraged to communicate these, in advance if possible, to the instructor in the case that special arrangements need to be made.

Netiquette

The term "Netiquette" refers to the etiquette guidelines for electronic communications, such as e-mail and bulletin board postings. Netiquette covers not only rules to maintain civility in discussions, but also special guidelines unique to the electronic nature of forum messages. Please review Virginia Shea's "The Core Rules of Netiquette" for general guidelines that should be followed when communicating in this course.

Subject to Change Statement

Please note that this Course Syllabus is subject to change. Students are responsible for abiding by such changes.