Course Syllabus and Structure

1 About This Class

This course is an upper-level course for students who interested in open source software development and want to learn how to participate in open source software projects. It is a very "hands-on" class, run like a seminar, with many in-class and out-of-class activities. Learning takes place through participation in these activities and therefore attendance is both important and mandatory. "Open source" also extends beyond code *per se*, and therefore the course includes components related to *openness* in general, such as *Wikipedia* and *OpenStreetMap*.

2 Communications

Class Meetings:	Monday, Thursday 9:45 – 11:00, 1001E Hunter North
Office:	HN1090J
Office Hours:	Monday, 11:30 - 13:30
Email:	stewart.weiss@hunter.cuny.edu
Telephone:	(212) 772-5469

It is critical that you read your Hunter email at least once per day and that, if I send email to you that requires a response, you respond within a day, unless I state otherwise.

Regarding email, please note that I will not read email containing Microsoft Word-encoded documents. If you need to attach a document, it must be either plain text or PDF. Note too that all email must be sent from your "`myhunter`" account. It is a violation of federal law (*FERPA*) to have an email conversation about school-related matters using a non-school account because there is no proof that it is not spoofed and it might be insecure[1].

Regarding office hours, you can see me during my office hours *without an appointment*. If you need to see me at a different time, you need an appointment. The best way to make an appointment is to send me email with a few suggested times. You can also call my office and leave a message. I am usually unable to schedule meetings in a conversation before or after class because I need to see my calendar to know when I am available.

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3 Books

There are a number of books that will be used in this course. You do not have to purchase any of them; the ones we use are all available on-line at no cost. The course website has links to them, but for your convenience, references to them are provided below.

> ***Producing Open Source Software***, 2nd edition, Karl Fogel
> `http://producingoss.com`
> A book about creating open source software, but it has many relevant chapters for those who want to participate in an existing project.

[1] Email sent from the *myhunter* account requires an authenticated login, it satisfies FERPA's written consent requirement. However because security measures for other email systems are not as strict, an email received from Gmail or other mail accounts, for example, would NOT satisfy FERPA requirements.

The Architecture of Open Source Applications,Amy Brown and Greg Wilson (editors)
`http://www.aosabook.org/en/index.html`
A collection of articles in which each chapter describes the architecture of an open source application, including how it is structured, how its parts interact, why it is built that way, and what lessons have been learned that can be applied to other big design problems.

Practical Open Source Software Exploration, Greg DeKoenigsberg, Chris Tyler, Karsten Wade, Max Spevack, Mel Chua, and Jeff Sheltren
`https://quaid.fedorapeople.org/TOS/Practical_Open_Source_Software_Exploration/html`
Although this book was last revised in 2010, much of its content is independent of its age, and it is very relevant to anyone considering working in the open source community.

ProGit, 2nd edition, Scott Chacon and Ben Straub
`https://git-scm.com/book/en/v2`
This is an excellent tutorial and reference on using Git (not GitHub).

The Linux Command Line, William Shotts
`http://linuxcommand.org/tlcl.php`
There are many books about how to use `bash` and the Linux command line. This one is very accessible and easy to follow.

4 Online Resources

- All course materials, including lecture notes, slides, assignments, the syllabus, and other resources and reference materials, including this document, are accessible from the course website:
  `http://www.compsci.hunter.cuny.edu/~sweiss/course_materials/csci395.86/cs395.86_spr20.php`
- Some course materials will be found in repositories on *GitHub*. The class has a *GitHub* organization, `hunter-college-ossd-spr-2020`, which can be found at
  `https://github.com/hunter-college-ossd-spr-2020`.
- This class will use *Piazza* as a discussion board, which can be found at
  `https://piazza.com/class/jx0oylrlnf84wo`

  Please see Course Materials and On-line Resources below for the details.
- All students will need to create accounts on *GitHub*, *OpenStreetMap*, and *Wikipedia*. Instructions for doing so are contained on the course website.

5 Objectives

This course has several objectives. It is intended to give students direct experience participating in ***Free and Open Source Software*** (***FOSS***) projects while simultaneously giving them a deeper understanding of the theoretical and practical foundations of FOSS and its societal, commercial, legal, and philosophical origins and impact. It is expected that all students will take part in the discourse within open source communities. The course also introduces the concept of ***Humanitarian Free and Open Source Software***, (***HFOSS***) which is software designed to provide a humanitarian service. It will also introduce ***Computing for Social Good*** and describe its relationship to HFOSS. The course also expects students to become comfortable working in a Linux command-line environment, since many open source tools are Linux-based.

Among the outcomes of this course are that the student

- will be able to explain to others the nature of open source software, particularly how it differs from proprietary software;

- will be able to evaluate open source software projects with respect to their maturity, level of activity, community friendliness, and complexity;
- will be able to find suitable open source software projects in which to participate;
- will become a contributing member of a software development community;
- will be able to choose an appropriate license for their creative works in general and to explain what can and cannot be done with software that has a specific license;
- will be able to explain how software licensing works in general, what choices of license exist;
- will be able to perform routine tasks in a Linux command line (i.e., terminal interface); and
- will be able to give several examples of the ways in which companies earn money in the open source ecosystem.

Deliverable outcomes include

- documented evidence of contributions to open source communities and/or projects;
- public and private repositories of work for the course on *GitHub*;
- a weekly blog that chronicles the student's work and comments on matters related to open source.

Specific tool-chains and technology that the student will explore and learn to use well include:

- version control systems, and *Git* in particular,
- issue trackers,
- communication channels such as *IRC*,
- markdown languages, such as standard *Markdown*, *Wiki Markup*, and *GitHub Markdown*,
- documentation systems,
- tools in the *Linux/Unix* programming environment such as `bash` and `make`

6 Prerequisites

All students should have completed the first three programming courses, CSci 127, 135, and 235. Exceptions might be made for those who have not had CSci 235. Students who have not worked on the Department's Linux systems, running *Ubuntu 18.04*, are strongly encouraged to familiarize themselves with the system and make sure their accounts are in order.

7 Course Structure

This course has a seminar structure. Much of the learning is through independent individual and group activities that take place both in and out of the classroom. There are also classes run in a traditional format, with the instructor giving a lecture, and there will be invited outside speakers who will give presentations to the class. However, the instructor's primary role is to serve as a mentor and guide, and students are expected to have enough motivation to do all that is expected of them without the need for a "carrot and stick" policy.

As is true for any three-credit course in Hunter College, students should expect to spend about one hundred to one hundred fifty hours on the course over the entire semester.

8 Syllabus

This is a list of the topics covered in this course, not in the order in which they will be visited. The exact sequence of topics is provided in the class schedule found on the course website. In general, in each week one class will be an instructor-guided lesson and the other will be a hands-on activity.

- Context, History, and Overview
  - Principles of open source - the *Open Source Definition* and the *Free Software Definition* and their ramifications
  - History and background of open source software
  - Open source culture and community
  - Open-ness in general: open source software and hardware, open data, open organizations (government, education, etc.)
  - Humanitarian open source software
- Evaluating and Assessing Projects and Communities
  - Measures of open source projects and communities: maturity, level of activity, friendliness, welcomeness and codes of conduct, size of code base
  - Understanding and interpreting project metadata
  - Evaluating the suitability of a project for the purpose of contributing to it
  - Studies of selected projects
- The Business of Open Source
  - Business models: how money is made from open source software
  - The role of open source software in the software industry
  - Careers in open source
- Contributing to Projects
  - Types of contributions to open source software projects
  - Ways of getting involved in projects
  - Early and easy contributions:
    - Contributing to *OpenStreetMap*
    - Contributing to *Wikipedia*
  - Project guidelines: *How to Contribute* documents
  - Behavior of the community: *Codes of Conduct*
- Tools and Technology
  - Programming Tools and Technology
    - Working in the Unix/Linux command line: basic Unix commands, including filters
    - Basics of bash scripting
    - Basics of the Make document/program update utility
  - Document Preparation
    - Markdown languages
    - Documentation tools
  - Collaborative software engineering tools
    - Version control systems (*Git*)

        * Issue tracking
    - Software engineering tools for distributed collaboration
        * Communication tools (e.g., blogs, *Slack*, *IRC*)
        * Remote, distributed version control (e.g., *GitHub*, *GitLab*)
        * Online, web-based issue trackers: *Bugzilla*, *GitHub's* issue tracker, others

- Project Selection/Assignment
    - Getting involved in the community
    - Setting up project development environment
    - Creating issues and identifying issues on which to work
    - Resolving issues and submitting pull requests
- Intellectual Property Rights and Licensing
    - Intellectual property
    - Copyrights, patents, and trademarks
    - Types of software and non-software licenses
    - Interpreting and choosing licenses
- Team and Individual Reports

9 Class Calendar and Important Dates

There are no classes on **Monday February 17** and during the spring recess from Wednesday April 8 through Thursday April 16. ***The last day to drop without a W is February 16***. ***The last day to withdraw is April 1.*** The last day of class is Thursday, May 14. The final exam for this class is scheduled to be on May 21, from 11:30 AM to 1:30 PM. ***The time reserved for the final exam will be used for class presentations.***

10 Assignments, Exams, and Grading

The grade will be based upon a weighted average of several components, including contributions, homework, class participation, and in-class readiness assessment tests. To be precise:

- **Weekly Blogs** (14%).
    - See below for details.
- **Contributions** (40%)
    - *Project Contributions* (25%). The goal is to have the pull requests that you submit to open source projects be accepted, but that is not entirely under your control. You might make pull requests that are not accepted during the course of the semester, for various reasons. Therefore, this component of your grade is more subjective than others and is based to a large extent on the effort that you put into your work on the project. If you succeed in making an accepted pull request, of a non-trivial nature, that is sufficient. Otherwise, your grade for this component will be based on evidence of the work that you did.
    - *OpenStreetMap* (5%). You are expected to make five independent, nontrivial edits to *OpenStreetMap*. Details are provided in the instructions.
    - *Contributions to Wikipedia* (5%). You are expected to make five independent, nontrivial edits to the English Language *Wikipedia*. Details are provided in the instructions.

  - *Contributions to Other People's Blogs* (5%). This includes pull requests that you submit to other people's blogs in accordance with the instructions given in the blog-editing activity link on the course web-page. You are expected to make independent edits to at least five other people's blogs.

- **Assignments and Activities** (16%)
  - This is work that you submit in response to assignments and activities that are posted either on the course website or assigned in class. The rubric for each will be distributed with that activity or assignment.
- **Class Participation** (10%)
  - *Attendance, and Participation in Class Discussions* (5%)
    The success of this class is mostly up to each of you as its primary participants. If you all engage in the material, prepare carefully, and come to class eager to participate in discussions and activities with your peers, then our meetings will be lively and interesting and we will be able to focus largely on the aspects of the material that are most interesting to you as a group. Furthermore, this will be good practice. See Group Discussions as a Screening Technique Before or During Interviews.
  - *Presentations* (5%)
- **Readiness Assessments** (20%)
  - These are written tests given in class based on assigned readings or materials taught in class. There will be between three to five assessments. The class is scheduled to have a final exam but ***there will not be a final exam.***

11 Blogs

Maintaining a journal is a requirement of this course. Writing a journal improves your written communication skills and serves as an indicator of what you accomplish in this class. We will use a *GitHub*-hosted blog for keeping these journal entries. Instructions for setting up the blog and guidance on its content and form are provided on the course website.

12 Lateness and Incomplete Grades

Work that has a deadline, such as a weekly blog post, or a homework assignment, must be submitted by that deadline if it is to receive a non-zero grade. Work that has no deadline, such as a contribution to an online open source project, has no such requirement. Unless there are extenuating circumstances, I will not give a grade of INC in this project. Your responsibility in this class is to meet all challenges in a timely way!

13 Programming and System Access

Hopefully, everyone enrolled in this class has already taken classes at Hunter and should be familiar with the computing facilities[2]. Hence this syllabus does not describe them. You should have an account on the Computer Science Department's network. If you do not, you should notify me immediately, so that I can have one created.

As a reminder, some of the important rules that must be followed when you are physically in the lab and using one of the lab's computers are:

[2]In the event that you are a new transfer student, you should speak to me as soon as possible to make sure that you are up to speed with the Computer Science Department's network.

- Never power down a machine for any reason.
- Never leave a machine without logging out.
- Never use `lockscreen` to lock the screen in your login.

There are other rules. The Department's ***System Administrator*** maintains a web-page:
http://www.compsci.hunter.cuny.edu/∼csdir/,
that contains useful advice, help, rules, and information about the labs. You must read this web-page to make sure you know what is allowed and what is not allowed.

14 Course Materials and On-line Resources

- All lecture notes, slides, and activities will be posted on the course's home web-page, whose URL once again is
  `http://www.compsci.hunter.cuny.edu/~sweiss/course_materials/csci395.86/cs395.86_spr20.php`

  Access to this website does not require special privileges; it is open to all and licensed in general with an open source license.
- The only part of *Blackboard* used in this course is the Grade Center, for posting of grades.
- *Piazza* will be used for on-line class discussion and for my sending out notifications to everyone. The system is designed for getting you help quickly and efficiently from classmates and me. Rather than emailing questions to me, you are to post your questions on *Piazza*. If you have any problems or need feedback for the developers, email *team@piazza.com*.

  You can find the discussion board at:

  `https://piazza.com/class/k4xbrx6fx1k3hq`.

  An invitation to join the *Piazza* discussion board will be sent to your Hunter College email address close to the start of the semester. You should accept this invitation. Your Hunter email address can be used for reading and sending messages to the group, or you can change the email address or add another on the settings page. In fact, you can request to join the group with any email address you choose, at

  `piazza.com/hunter.cuny/spring2020/csci39586`
- *GitHub* will be used extensively for storing repositories of source code, some assignments and activities, and some notes as well. You will have the ability to create as many repositories as you need within the class's *GitHub* organization, `hunter-college-ossd-spr-2020.`

14.1 Piazza Protocol

I require that you use the following protocol if you have a question:

1. Check whether the question you want to ask has been posted and answered on Piazza.
2. If it has been answered, you are finished. If not, post the question on Piazza.
3. Anyone in the class can answer the question. If no one else answers the question in a timely manner, I will post an answer to it.

If you post a question that has already been asked and answered, I will ignore the question. I will also ignore any non-personal questions sent to my Hunter email address. Personal questions (such as a questions about a grade or a missed class or alternative times to meet with me) should be sent via private email to my Hunter email address, not to Piazza.

15 Academic Honesty

The *Oxford English Dictionary* states that "plagiarism is the act or practice of taking someone else's work, idea, etc., and passing it off as one's own; literary theft." If you pass someone else's work as your own you have committed ***plagiarism***, which is an act of academic dishonesty. Unless I state otherwise, all assignments and projects are to be your work alone. If someone else does part of this for you, it is considered to be academic dishonesty. Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The college is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures. In this class, I will enforce the University's Policy on Academic Integrity and bring any violations that I discover to the attention of the Dean of Students Office.

16 ADA Compliance

In compliance with the *American Disability Act of 1990* (ADA) and with *Section 504* of the *Rehabilitation Act of 1973*, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (emotional, medical, physical and/or learning) consult the *Office of AccessABILITY* located in Room E1124 to secure necessary academic accommodations. For further information and assistance, the student can call (212-772-4857)/TTY (212-650- 3230).

17 Hunter College Policy on Sexual Misconduct

In compliance with the *CUNY Policy on Sexual Misconduct*, Hunter College reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the *Bill of Rights for Hunter College*.

- Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, or contacting the College's Public Safety Office (212-772-4444).
- All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123.
- CUNY Policy on Sexual Misconduct Link:`http://www.cuny.edu/about/administration/offices/la/Policy-on-Sexual-Misconduct-12-1-14-with-links.pdf`

18 Changes to This Syllabus

Because this is a relatively new course, it is hard to predict exactly what will be covered or how much time will be spent on each topic. Except for changes that substantially affect the implementation of the grading statement, this syllabus should be interpreted as a guide for the course and viewed as subject to change with advance notice. Any changes will be posted to the course website and to the Piazza group for the course.