Coding Natural Language: Fall 2022

Course Information:

Wednesday, 4:00 pm - 6:40 pm

6 East 16th Street, 913

Eugene Lang College of Liberal Arts

Instructor Information:

Filipa Calado

caladof@newschool.edu: <mailto:caladof@newschool.edu>

Office hours: Tues/Thurs, 12pm-1pm. Signup: <http://www.bit.ly/calado_office>

Course Description:

This course teaches code as an instrument of thought, exploration and expression relevant to many areas in the liberal arts, much like writing. One goal of a liberal arts education is to learn ideas and ways of thinking necessary to function in society. As the importance of computational systems spreads into every domain of modern life, code is no exception. Students will learn the fundamentals of computational thinking and how it relates to a number of creative and investigative pursuits from botmaking to data analysis to games, as well as explore broader social topics such as the influence of big data, machine learning and algorithmic bias in decision making. The semester will culminate with students applying their new coding knowledge to tackle a larger academic or creative project stemming from their existing studies and interests. No prior coding experience required. Students are expected to own a laptop computer, or check one out from the University and bring it with them to every class. This course fulfills the Intro Integrative course requirement in the Culture and Media major.

Class Website & Email

Rather than using Canvas this semester we will be using a separate course website. All deadlines, reading materials, project tutorials, and other course materials will be posted here:

<https://www.bit.ly/cnl-fall-22>

You will only be using the Canvas Course Website to submit your project work, reading responses, and coding homework.

Please check this site as well as your @newschool.edu email regularly for any course announcements, possibly including last minute updates.

Course Structure

Our course meets once per week in person. See the course schedule below for daily plans, and always check the website for any changes or updates.

Course Requirements & Assignments:

*Weekly readings:*

There will typically be about 20-40 pages of reading in preparation for each week (about 1-2 articles or chapters) as well as some links to example projects for you to consider.

*Reading Responses:*

On weeks that you have a *Reading Response* due, you will submit a short reading response (approximately 300 words, or 1 full page) due on Tuesday night at 8pm, the evening before class. You will submit these in a shared Google Drive folder, linked from the class website.

For this assignment, choose one moment from the reading that struck you in some way. What did you find compelling about this moment? How might it relate to our class readings or discussions? How does it deepen your thinking about coding or language?

The reading response is meant to get you to think deeply about the readings and prepare you for class discussion. They will be graded as Pass, Fail, or Zero.

*Coding Homework*:

On weeks where you do not have a Reading Response, you will have coding homework. These are short coding challenges based on the previous class instruction. You will not be graded on how well you code, but on your engagement and attempt at the challenge. That being said, these assignments will also offer opportunities for you to customize, extend, or go further with your solutions, which is entirely up to you.

If you run up against obstacles, remember that errors are our friends. They often offer us clues for debugging. In the case that you are really stuck, do not be discouraged, but think of it as an opportunity to bring up for class discussion. To reiterate, you will be graded on making the attempt, not on being "correct.

*Class Participation:*

Your participation grade will reflect how much you participate vocally in class discussion and during coding lessons throughout the semester.

Your vocal participation is always encouraged in this class. Most of what we do will be discussing, summarizing, and analyzing in a group environment. With that in mind, it will be important to do the readings, to come to class, and to offer your opinion. Your reading responses and coding homework should also offer material for class discussion, and you are always encouraged to share what you wrote or coded, even (especially!) if you encountered an obstacle or error.

*Final project & Writeup*:

At the end of the course you will create a final project that draws together exercises from across all three units that you wish to work with further. You will extend or combine lessons and techniques from throughout the semester that you wish to work with further, bringing in material from at least two different units.

Please submit a 1-page project proposal, **due Wednesday, November 9** that explains your intentions and clearly states which exercises you will be working with, and your plan to combine and extend them.

The final project will be paired with a 900-1000 word writeup (3-4 pages) explaining your project. Take care to cite at least two readings from the semester and explain how your project engages with concepts that we have discussed throughout the semester. The final project is **due December 7,** and the final paper is due on **December 14**.

Final Grade Calculation:

Class Participation (Class Discussion and Coding Lessons): **40 %**

Weekly Homework (Reading Responses and Coding Homework): **30 %**

Final Project (Preparatory Materials, Project, Presentation): **20 %**

Final Project Writeup: **10 %**

Learning Outcomes:

Through this course, students will:

1. use computation as a hands-on tool to enhance their liberal arts education--to better analyze, communicate, create and learn;

2. understand the historical development of artificial intelligence, exploring the rise of computation and its imbrication with language-based processes.

3. think critically about the ways that they and others interact with computation, including understanding its socio-cultural and political limitations and biases; and

4. identify the social and political implications embedded within computational technologies and develop an accompanying critical / ethical framework.

Course readings & materials:

All readings will be provided via the course website. There are no required textbooks to purchase for this course.

In addition to these texts and materials, you will need access to a laptop for the duration of the course to complete the projects.

Course Schedule

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| --- | --- | --- | --- |
| Class Date | Topic | Reading due | Writing due |
| **Unit 1: Python Basics**  August 31 | Syllabus review & Installations  Play: [*GPT-2*](https://transformer.huggingface.co/doc/gpt2-large): <https://transformer.huggingface.co/doc/gpt2-large> | None | None |
| September 7 | Lessons 1-4 in “Introduction to Python”: <https://curriculum.dhinstitutes.org/workshops/python/> | Alan Turing, “Computing Machinery and Intelligence”  Play *ELIZA*: <https://web.njit.edu/~ronkowit/eliza.html> | Reading Response |
| September 14 | Lessons 5-9 in “Introduction to Python” | Steven Johnson, “A.I. Is Mastering Language. Should We Trust What It Says?”  Play *NovelAI*: <https://novelai.net/> | “Functions” homework |
| September 21 | Lessons 10-14 in “Introduction to Python | Ruha Benjamin, “Introduction” from *Race after Technology: Abolitionist Tools for the New Jim Code* | “Loops” homework |
| **Unit 2: Text Analysis**  September 28 | Intro to Natural Language ToolKit (NLTK):  <https://curriculum.dhinstitutes.org/workshops/text-analysis/> | Ted Underwood, “Seven Ways Humanists are Using Computers to Understand Text”: <https://tedunderwood.com/2015/06/04/seven-ways-humanists-are-using-computers-to-understand-text/>  Play: Voyant-Tools: <https://voyant-tools.org/> | “Haunted House” homework |
| October 5 | NLTK lessons cont | Lauren Klein, “Distant Reading After Moretti”: <https://arcade.stanford.edu/blogs/distant-reading-after-moretti> | Reading Response |
| **Unit 3: Text Parsing**  October 12 | HTML parsing with Beautiful Soup 4 (bs4):  <https://github.com/gofilipa/bs4_workshop> | Ted Chiang, “Understand” | Reading Response |
| October 19 | Text Parsing | Aaron Reed, “[1976: Adventure](https://if50.substack.com/p/1976-adventure)”: <https://if50.substack.com/p/1976-adventure>  Play [*Colossal Cave Adventure*](http://rickadams.org/adventure/advent/): <http://rickadams.org/adventure/advent/> | “Frequency Distribution” homework |
| October 26 | Text Parsing cont | Pratyusha Kalluri, “The Values of Machine Learning”: <https://slideslive.com/38923453/the-values-of-machine-learning>  Aaron Reed, “[2008: Violet](https://if50.substack.com/p/2008-violet)”: <https://if50.substack.com/p/2008-violet>  Play [*Violet*](https://iplayif.com/?story=http%3A%2F%2Fwww.ifarchive.org%2Fif-archive%2Fgames%2Fzcode%2FViolet.zblorb) by Jeremy Freese: <https://iplayif.com/?story=http%3A%2F%2Fwww.ifarchive.org%2Fif-archive%2Fgames%2Fzcode%2FViolet.zblorb> | Reading Response |
| **Unit 4: Final Projects**  November 2 | Intro Final Projects  [Markovify](https://github.com/jsvine/markovify) | Friedrich Kittler, “There is No Software” | “Lexicon and Parser” homework |
| November 9 | Workshops | Richard Powers, Galatea 2.2, pages 1 - 135. | Project Proposal due |
| November 16 | Workshops | Richard Powers, Galatea 2.2, pages 135 - 270. | Reading Response |
| November 30 | Workshops | Richard Powers, Galatea 2.2, pages 270 - 395. | Project Outline due |
| December 7 | Presentations |  |  |
| December 14 | Final Project writeup due |  |  |

Other readings to consider:

* Jacob Gaboury, “[A Queer History of Computing](https://rhizome.org/editorial/2013/feb/19/queer-computing-1/)”, parts 1-5” <https://rhizome.org/editorial/2013/feb/19/queer-computing-1/>
* Montfort's *Exploratory Programming for the Arts and Humanities*: <https://mitpress.ublish.com/ebook/epah2e-preview/12629/23>
* From Thomas S. Mullaney, Benjamin Peters, Mar Hicks and Kavita Philip, Y*our Computer Is on Fire*: <https://mitpress.mit.edu/9780262539739>
  + Lawrence, “Siri Disciplines”
  + Stanton, "Broken is Word"
  + Mulaney, "Typing is Dead"
* Hannah Zeavin, “Auto-Intimacy,” from *The Distance Cure*
* Wardrip-Fruin, Noah. "Digital Media Archaeology: Interpreting Computational Processes"
* Nick Montfort et al, *10 PRINT CHR$(205.5+RND(1)); GOTO 10*, Introduction & chapter 40, "Randomness"
* Ruha Benjamin, *Race After Technology*
* Allington, Brouillette, and Golumbia, “Neoliberal Tools (and Archives): A Political History of Digital Humanities,” *Los Angeles Review of Books*, May 2016

Resources:

The university provides many resources to help students achieve academic and artistic excellence. These resources include:

* University Libraries:<http://library.newschool.edu>
* University Learning Center:<http://www.newschool.edu/learning-center>
* University Disabilities Service: [www.newschool.edu/student-disability-services/](http://www.newschool.edu/student-disability-services/)

I am more than happy to ensure any required accommodations for any students with accessibility issues. Any student who has needs or concerns about academic accommodations is welcome to meet with me privately. All conversations will be kept confidential. Students requesting any accommodations will also need to contact Student Disability Service (SDS). SDS will conduct an intake and, if appropriate, the Director will provide an academic accommodation notification letter for you to bring to me. At that point, I will review the letter with you and discuss these accommodations in relation to this course.

* Student Ombuds:<https://www.newschool.edu/student-advocacy/conflict-resolution/>

The Student Ombuds office provides students assistance in resolving conflicts, disputes or complaints on an informal basis. This office is independent, neutral, and confidential.

* Office of Financial Aid:<https://www.newschool.edu/financial-aid/>

During this online semester, financial aid staff remain available by email, phone, and Google Hangout Monday through Friday from 9:00 a.m. to 5:00 p.m. You can also make a virtual appointment with staff via Starfish.

Eligible students may be considered for different types of financial aid such as scholarships, federal grants, federal work study and federal student loans. To be considered for federal student aid, you will need to complete the Free Application for Federal Student Aid (FAFSA) available online at fafsa.gov. The FAFSA is available starting October 1. The New School’s priority deadline to submit the FAFSA is February 15. The FAFSA needs to be submitted annually.

University and College Policies

*Academic honesty, plagiarism … and computer programming*

Compromising your academic integrity may lead to serious consequences, including (but not limited to) one or more of the following: failure of the assignment, failure of the course, academic warning, disciplinary probation, suspension from the university, or dismissal from the university.

Students are responsible for understanding the University’s policy on academic honesty and integrity and must make use of proper citations of sources for writing papers, creating, presenting, and performing their work, taking examinations, and doing research. It is the responsibility of students to learn the procedures specific to their discipline for correctly and appropriately differentiating their own work from that of others. The full text of the policy, including adjudication procedures, is found at<http://www.newschool.edu/policies/>

Resources regarding what plagiarism is and how to avoid it can be found on the Learning Center’s website:

<http://www.newschool.edu/university-learning-center/avoiding-plagiarism.pdf>

All of that said, software development work and coding almost always involve the appropriation and collaging of other people’s code. Learning computer programming often entails modifying working examples rather than starting from scratch. In this class we are participating in communities of shared practices. However, any work you borrow and/or modify *must* be labeled as such. If you find sample code and integrate it into your work, this must be clearly and obviously indicated as such. You can use comments in your code and/or your lab notes. You will not be graded down for integrating other people’s work into your own. In fact, integrating the code of others is often more challenging than writing your own. However, I wish to review and comment on the work that *you* do, so this must be clearly indicated. Failure to do so will be considered the same as any other breach of academic integrity.

*Intellectual property rights.*<http://www.newschool.edu/provost/accreditation-policies/>

*Grade policies.*<http://www.newschool.edu/registrar/academic-policies/>

*Student code of conduct.*<https://www.newschool.edu/student-conduct/>

Inclusion & Respect

The following is modified from The New School’s [declaration on maintaining a safe and respectful learning environment](https://www.newschool.edu/lgbtq/safe-zone/): In this class we are dedicated to creating a welcoming environment for all members of the university community inclusive of race, ethnicity, national origin, culture, language, gender and gender expression, sexuality, religious and political beliefs, age, and ability. We’ll aim to celebrate our diversity and to respectfully negotiate differences in experience, understanding, and expression. We will stand against all forms of discrimination and oppression, whether directed against individuals or groups. We will also make an effort to respect one another’s individuality in our forms of address, which includes learning one another’s names and pronouns.

If you experience anything in the classroom that undermines these values – or if there is anything that I can do to better cultivate inclusivity and respect – please feel free to let me know. Likewise, if you are facing personal challenges inside or outside the classroom that are impacting your class performance, I’m happy to speak with you about strategies of accommodation, and to help you find the appropriate support resources at the university. (This text is appropriated from Professor Shannon Mattern.)

Student Course Ratings

During the last two weeks of the semester, students are asked to provide feedback for each of their courses through an online survey. They cannot view grades until providing feedback or officially declining to do so. Course evaluations are a vital space where students can speak about the learning experience. It is an important process which provides valuable data about the successful delivery and support of a course or topic to both the faculty and administrators. Instructors rely on course rating surveys for feedback on the course and teaching methods, so they can understand what aspects of the class are most successful in teaching students, and what aspects might be improved or changed in future. Without this information, it can be difficult for an instructor to reflect upon and improve teaching methods and course design. In addition, program/department chairs and other administrators review course surveys. Instructions are available online at:

<http://www.newschool.edu/provost/course-evaluations-student-instructions.pdf>