

# CPS425 Language Processing

## Sections 1, 2

### Fall 2025

**Lecture:** TF 9:30 AM – 10:45 AM SH 181

**Labs:**

Section 1: T 5:00 PM – 7:50 PM SH 271

Section 2: W 9:30 AM – 12:20 PM SH 271

**Credits:** 4

**Prerequisites:** CPS310 Minimum Grade of C- and CPS330 Minimum Grade of C-

**Instructor Information:**

**Professor:** Ashley Suchy

**Email:** [suchya1@newpaltz.edu](mailto:suchya1@newpaltz.edu)

**Office Hours:**

- TBA
- or email to set up an appointment for other times

**Office:** SH 246

**Course Resources:** All resources will be accessible through a shared class OneDrive folder. You will need to use your student email to access it. [folder link](#)

**TA Information:**

**TA:** Nicolas DeMilio

**Email:** [demilion1@newpaltz.edu](mailto:demilion1@newpaltz.edu)

**Office Hours:** Tuesdays 4:00 – 5:00, Thursdays 2:00 – 3:00

**Office:** SH 240

**Course description:** The theory and practice of language processing: finite state machines, context-free grammars, push-down machines, Turing machines.

**Textbooks:**

- An Introduction to Formal Languages and Automata by Peter Linz (5<sup>th</sup> edition)
- Introduction to the Theory of Computation by Michael Sipser (2<sup>nd</sup> edition)
- JFLAP- An Interactive Formal Languages and Automata Package by Susan Rodger and Thomas Finley

**Student Learning Outcomes:** By the end of the course students:

- be familiar with the regular languages and the main ways we represent them
- be familiar with context-free languages and the main ways we represent them
- be familiar with Turing machines

- be able to show proofs related to decidability, computational complexity, equivalence, and properties of grammars and automata.

**Attendance Policy:** Attendance of lectures and labs are **mandatory**. Be aware that you will be on your own to make up for missed lessons. You have 3 lecture\* absences and 1 lab\* absence. Any additional absences will result in a 2-point deduction from your final grade. **Your lab absence may not be used on project presentation days.**

\*Extenuating circumstances will be case by case.

**Technology use during lecture:** Put **all (phones, smart watches, headphones, laptops, etc.)** electronics away and turn them to silent. You will be asked to leave if you are distracting anyone through the use of electronic devices. If you are using an electronic to take notes during lectures, make sure it is quiet and that you are still following along with the class. Make sure to have paper and a writing utensil for each lecture and lab for hands-on exercises and quizzes.

**Grading:** **This course is out of 1000 points.** Your sum over 1000 gives your weighted grade in the course. Example: if your current score is 350 out of 1000 then your percent is  $(\frac{350}{1000}) \cdot 100 = 35\%$

- + **Quizzes-** There will be a weekly lab quiz. The quiz topics will be related to the previous week's lab and lecture materials. The top 10 quizzes will count. **200 points**
- + **Lab/Lecture Participation-** You will need to be an active member of the lecture and lab. There will be discussions, problems, presentations, and quiz solutions that you will need to listen to and present. **40 points**
- + **Homework-** Complete any unfinished lab problems
- + **Test 1-** September 26<sup>th</sup> in lecture **170 points**
- + **Test 2-** October 28<sup>th</sup> in lecture **170 points**
- + **Project Part 1-** An individual presentation given during lab. **60 points**
- + **Project Part 2-** A semester-long project and report presented during the lab. **110 points**
- + **Final Exam-** December 12<sup>th</sup> from 10:15 AM–12:15 PM **250 points**
- All tests and quizzes will be closed book and on paper.
- There will be NO makeup quizzes and/or exams given.
  - If you know in advance that you will miss an exam you may schedule with the professor to take it early.
- The final will replace your lowest score of test 1 and test 2 at the end of the semester.
- There will be no extra credit work given for any reason.
- There will be no raising of letter grades at the end of the semester for any reason.

<b>A</b>	93–100	930 – 1000
<b>A-</b>	90–92.9	900 – 929
<b>B+</b>	87.5–89.9	875 – 899
<b>B</b>	82.6–87.4	826 – 874
<b>B-</b>	80–82.5	800 – 825
<b>C+</b>	77.5–79.9	775 – 799
<b>C</b>	72.6–77.4	726 – 774
<b>C-</b>	70–72.5	700 – 725
<b>D+</b>	67.5–69.9	675 – 699
<b>D</b>	62.6–67.4	626 – 674
<b>D-</b>	60–62.5	600 – 625
<b>F</b>	0–59.9	0 – 599

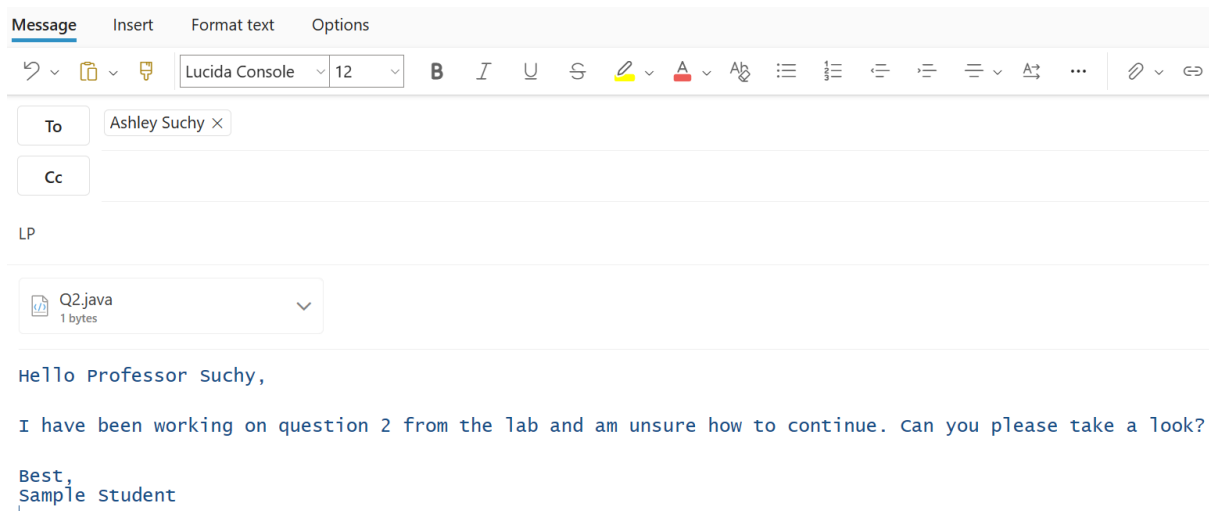
**Cheating and Plagiarism:** All graded work is to be done individually. Copying and pasting answers or parts of an answer from the web or other students is considered plagiarism.

- Anytime you hand me work it should be 100% your own.
- Any assignment with cheating from the internet or another student will result in a 0% on the assignment for all individuals involved.
- Other consequences may include:
  - meeting with the chair of the department
  - failing the course

**Email Etiquette:** The following applies when you send an email to the professor:

- Use only your school email address only: @newpaltz.edu
- Use LP as the subject line
- Start the email with a greeting  
ex. Hello Professor, Hi Professor Suchy, etc.
- Explain your question/concern in proper sentences
- Attach the program/problem you are referring to
- End the email with a closing  
ex. Best, Thank You, etc. followed by your name

Any email failing to meet the above standards will not receive a response.



**Office Hour:** This is likely your first theoretical course. It can be very challenging to understand and formulate some of the proofs and concepts. **Please come to office hours with any/all questions/doubts as soon as they come up.**

**Evaluations:** SEI's will be open November 24 - December 8. You will get a chance to provide a "Student Evaluation of Instruction". Students are encouraged to complete this. I request that when SEI's become available please take 5–10 minutes to fill it out. Your feedback is much appreciated and I will take all comments into consideration for the following semesters.

**Course Withdrawal Date:** November 14, 2025

**Date to opt for Satisfactory/Unsatisfactory option:** December 8, 2025

**The up-to-date SUNY New Paltz policies can be found at the following webpage:** [policies](#)

## **Tentative Topics**

- Regular Languages
  - Deterministic Finite Automata, Nondeterministic Finite Automata
  - Regular Grammars
  - Regular Expressions
  - Properties of regular languages
  - Computational Problems
- Pumping Lemma to show a language is not regular
- Context-Free Languages
  - Pushdown Automata
  - Context-Free Grammars
  - Normal Forms (Chomsky, Greibach)
  - Properties of context-free languages
  - Computational Problems
- Pumping Lemma to show a language is not context-free
- Turing Machines
- Turing Machine Variations