

Nebraska Wesleyan University
Math 3600: Mathematical Problem Solving
Fall 02018

Instructor: Austin Mohr
Text: Think Python (Second Edition)
Allen Downey
<http://greenteapress.com/wp/think-python-2e/>
Time: T 10:20 am – 11:35 am
Room: Olin 113
Office: Olin 109D
Office Hours: Typically MWThF 11:00 am – 12:00 pm (appointment preferred)
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Course Website: AustinMohr.com/Sage
CoCalc Website: CoCalc.com
Drop Deadline: Monday, October 29
Final Exam: Thursday, December 13 at 8:00 am

Course Description

A seminar on problem solving skills and their application to nontrivial problems. Students will learn basic programming skills in Sage and use this knowledge to solve computational problems.

Assignments

Participation

Attending and participating in at least six class sessions earns one point. Attending and participating in at least twelve class sessions earns two points.

Homework

Homework will consist of eight short programming exercises to help reinforce the algorithmic concepts discussed during class meetings. Each assignment will be crudely graded out of two points. A correctly functioning and commented program will earn two points. Good faith efforts that nevertheless do not function properly will earn one point.

Final Project

Each group will choose an extended programming project near the end of the semester. Ideally, the chosen problem will make use of one of the algorithmic techniques demonstrated during the course (or a new algorithm of equivalent sophistication). Each group will describe its chosen problem and solution during the final exam time slot. The final project is worth a total of four points. Good sources for programming projects include, but are not limited to:

- Project Euler (ProjectEuler.net): Browse the Archives for an interesting problem. There are many good choices.
- Online Encyclopedia of Integer Sequences (OEIS.org): Visit the WebCam (no idea why it's called that) to browse interesting sequences at random. Even better, select "Sequences Needing More Terms" to find a sequence where you can make a novel contribution.
- Open Problem Garden (OpenProblemGarden.org): This site describes popular unsolved problems in mathematics. The problems in Combinatorics, Graph Theory, and Number Theory are particularly relevant. To form a project from this site, find a problem that sounds interesting to you and come discuss it with me. We will discuss it together to simplify the problem to something more manageable, since solving it as stated will be much too ambitious for a two-week project.

Grading Scale

The following grading scale assumes two attendance points, eight two-point homework assignments, and a four-point final project (for a total of 22 points).

Grade	Points
A	20
A-	19
B+	18
B	17
B-	16
C+	15
C	14
C-	13
D+	12
D	11
D-	10

Accommodations

Nebraska Wesleyan University maintains a supportive academic environment for students with disabilities. To assist us in that effort, Federal law requires that students with disabilities notify the University, provide documentation, and request reasonable accommodations. If you need accommodations in this course, please contact Prof. Sandy McBride, the Services for Students with Disabilities Coordinator (Old Main 126, 402-465-2346, smcbride@nebrwesleyan.edu).

Academic Integrity

Academic integrity is one of the basic principles of a university community. Nebraska Wesleyan University encourages and expects the highest standards of academic honesty from all students. The Code of Student Conduct states that students found to have engaged in academic dishonesty, which encompasses such activities as cheating, plagiarism, unauthorized collaboration, and misrepresentation, are subject to disciplinary sanctions. Refer to Article V of the Code of Student Conduct for examples and definitions of academic dishonesty along with possible sanctions. Violations of academic integrity will result at least in the failure of the assignment and/or course and could result in Student Conduct Board process.

Title IX Resources

As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. I also have a reporting responsibility under The Title IX Educational Act of 1972, which prohibits violence, harassment, and discrimination based on sex and gender. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-one one meetings. I will seek to keep information you share private to the greatest extent possible. However, for the sake of NWU students safety and welfare, I am required to share information regarding sexual misconduct or information about a crime that may have occurred on NWUs campus with Title IX coordinator or Deputy Title IX Coordinator. Confidential assistance is also available for students. If you or someone you know has been harassed, assaulted, or discriminated against because of sex or gender, the following resources are available:

On-Campus Confidential Resources

- Campus Victim Advocate: Lindsay Spaulding (lindsay@voicesofhopelincn.org or 402.465.2533)
- Campus Minister: Eduardo Bousson (ebousson@nebrwesleyan.edu)
- Counseling Center (402.465.2224)

Off-Campus Confidential Resources

- 24-hour Crisis Line (402.475.7273)
- Voices of Hope: Relationship violence, sexual assault, and abuse support center (2545 N Street; Lincoln NE 68510; 402.476.2110)

Title IX Resources

- Title IX coordinator: ?????????????? (????????)
- Deputy Title IX Coordinator: Dr. Susan L. Wortmann (swortman@nebrwesleyan.edu or 402.465.2305)