Discrete Structures!

CMPSC 102

Final Project Overview

ALLEGHENY COLLEGE

Introduction

- Apply a mathematical or computational concept
- Create a demonstration using Python
- Work in teams to research, build, and explain
- Present your work to the class

Key Dates

- Proposal Due: Friday, April 18 @ 2:20 PM
- Presentation Day: Wednesday, April 23 @ 2:30 - 4:20 PM
- Final Submission Deadline: Friday, May 2 @ 10:00 PM
  (Hard cutoff — no late submissions)

Working in Teams

- Team size: 2–3 members
- Use GitHub Classroom link to create/join teams
- One person creates the team, others join
- Collaborate actively, keep all members involved

Project Components

- proposal.md: Explain what you're studying and why
- researchNotebook.md: Track your team's progress and sources
- report.md: Write up your findings, include screenshots & code
- artifact.py: Your Python demo code
- Presentation: Show and explain your work live in class

Research Ideas

- Fibonacci, Lucas, or other number sequences
- Collatz (3x+1) or modified variants
- Prime testing (e.g., Miller-Rabin)
- Logic or set theory demonstrations
- Modular arithmetic or graph algorithms

Grading Breakdown

- GitHub Actions Status – 5%
- Technical Mastery – 35%
- Research Notebook – 15%
- Code Functionality – 30%
- Oral Communication – 15%

Tools & Setup

- Python 3 required
- Install gatorgrade with pipx
- Check progress: gatorgrade --config config/gatorgrade.yml
- Use Git regularly:

```
git add -A
git commit -m "Message"
git push
```

Final Notes

- Start forming teams this week
- Ask for help brainstorming topics
- Don’t wait until the last week to code!
- Be creative — surprise us with something fascinating!