

CS 2104

Introduction to Problem Solving



Faryaneh Poursardar
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About me

Research Interests

- Computer Human Information Interaction,
- Digital Libraries,
- Web Archive, Information Retrieval, Machine Learning and Data Mining, Digital Data Preservation

Course Info

- Schedule:

CRN 12687_201801, MWF 09:05 AM – 09:55 AM, MCB 113

- Course website: <http://people.cs.vt.edu/prsardar/>

- My Office hours:

McBryde Hall 122, MWF 10 – 11 am, and by appointment

- Prerequisites:

MATH 1205 or MATH 1526; ENGE 1024

- During the semester:

Read the reading assignments before each class

Be present and Participate in class

Do homework afterward

Course Overview

- Heuristics for problem solving: externalize, deduction, and simplify
- Communicating problem solutions: argument & proof, presentation (written and oral)
- Problem-solving in the large: generating potential solutions, evaluating solutions, working in teams
- Human aspects: self-assessment, succeeding as a student, inter-personal problem solving
- Skills for problem types: verbal reasoning, analogy, comprehension, trends, deduction
- Problem-solving for computer scientists: programming and problem solving, computation in problem solving.

Course Objectives

Having successfully completed this course, the student will be able to:

- Identify skills and personality traits of successful problem solvers.
- Apply standard problem-solving heuristics to aid in problem solving related to computer science.
- Apply problem-solving techniques to programming activities.
- Apply problem-solving techniques to school and personal interactions.
- Apply pair and team problem-solving techniques.
- Generate potential solutions to problems with standard heuristics.
- Formulate and successfully communicate problem solutions.

Textbooks and Supplementary Materials

The primary textbooks are:

- *Problem Solving & Comprehension*, 6th edition, Arthur Whimbey and Jack Lochhead, Routledge, 2013 (Available in the **Safari** database at www.lib.vt.edu)
- *Strategies for Creative Problem Solving*, 3rd Edition, H. Scott, Folger, Steven E. LeBlanc; with Benjamin R. Rizzo, Pearson, Upper Saddle River, New Jersey: Prentice Hall, 2014

We may also read some selections from:

- *Effective Problem Solving*, 2nd edition, Marvin Levine, Prentice Hall, Upper Saddle River, NJ, 1994.
- *How to Solve Almost Any Problem*, Alan Barker, Pearson 2013

Recommended references: You may find some of these optional textbooks helpful, though none are required:

- *The Art and Craft of Problem Solving*, 2nd Edition, Paul Zeitz. John Wiley & Sons 2007
- *Algorithmic Problem Solving*, Roland Backhouse, John Wiley & Sons 2011

CANVAS

- Homework submission
- Communication/discussion
- Grades

Give yourself plenty of time to figure out how to work in Canvas.

- If you feel like you have an issue that needs clarification, feel free to contact either me or the GTAs.

Graduate Teaching Assistant

- Shuangfei Fan
sophia23@vt.edu

office: Kelly Hall 219

Tuesday: 8:00am-11:00am

Thursday: 8:00am-11:00am

Friday: 8:00am-9:00am

Friday: 10:00am-12:00am

Friday: 4:00pm-5:00pm

- No cell phone use in class

Grading Policy

Grading	
Attendance, in-class practice, quiz	20%
Midterm exam	10%
Homework	50%
Final exam	20%

Extras : 1%

Homework

- Submission formats: **PDF (preferred)**, ASCII text, .doc, .docx or any readable format in Microsoft Word.
- Readability, clarity, and grammar are important
- You may not switch partners in the middle of an assignment
- Make one submission for the group
- State the contribution of EACH student to each problem
- VT Honor code

- Force/add surveys

<http://www.cs.vt.edu/F17Force-Adds>

Password: 2104f_p@