

# CS 2104: Introduction to Problem Solving in Computer Science

Fall 2017

## Course Information

Time and place	: CRN 201709_82533, MWF 10:10am – 11:00am, 170 NCB CRN 201709_82534, MWF 11:15 am – 12:05pm, 170 NCB
Instructor	: Faryaneh Poursardar
Office Hours	: McBryde Hall 122, MWF 9 – 10 am, and by appointment
Contacts	: <a href="mailto:prsardar@vt.edu">prsardar@vt.edu</a>
Website	: <a href="http://people.cs.vt.edu/prsardar/">http://people.cs.vt.edu/prsardar/</a>
GTAs	: Sorour Ekhtiari Amiri                      Jacob Porter esorour@vt.edu                                  jsporter@vt.edu
GTA Office Hours	: See the course web page or Canvas
Prerequisites	: MATH 1205 or MATH 1526; ENGE 1024.

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## Course Summary

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

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## Learning 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.
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## **Communication**

Course communication will be via [Canvas](#). We will post often to Canvas and course web site, so you should plan to check them often (every day).

If you want to send email to TA or me, make sure to include the course number (CS 2104) in the title and use an appropriate title for your email.

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## **Textbooks**

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](http://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

It is critically important that you study the relevant course readings so that we can make the most of our limited class time together.

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## Homework Assignments

Homework assignments must be submitted via [Canvas](#). Acceptable homework submissions format are PDF (preferred), ASCII text, .doc, .docx or any readable format in Microsoft Word. Note that presentation (i.e., readability, clarity, and grammar) will count in grading.

Some assignments require pairs, some are individual, and some may be optional pairs. When students turn in a joint assignment, all students in the group will normally receive the same grade. You may not switch partners in the middle of an assignment. In other words, you may not discuss solutions for any one assignment unless you are working on a group assignment. Then you are NOT allowed to discuss the assignment with members of other groups.

When students work in groups, it is important that all the students involved completely understand the answers that they submit. The instructor reserves the right to require any student to present the answers to their homework assignment verbally to insure that each student does in fact meet the minimum requirement of understanding the solutions they submitted, and may reduce credit given for the assignment if the verbal answer is not compatible with understanding of the written answer. All joint submissions MUST contain a statement that clearly indicates, for EACH problem, the contribution of EACH student to the problem. Some possible contributions for a problem might include one or more of the following: Cracked the problem, wrote up the solution, found flaws/improved earlier versions of the solution.

Only one partner need make the submission to Canvas. The Submission should contain the name of both/all partners.

All homework assignments must be submitted by 11:59pm Eastern time on the due date. Assignments received late will not be graded unless the instructor has given a prearranged individual extension.

Regrade Policy: You have one school week to appeal your scores after each assignment was graded.

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### Grading:

Attendance, in-class activities, quizzes	15%
Midterm	15%
Homework assignments	50%
Final	20%

The course final grading scale is:

A: 90-100, B+: 85-89, B: 80-84, C+: 75-79, C: 70-74, D+: 65-69, D: 60-64, F: 0-59

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**Attendance Policy:**

Attendance and class participation are mandatory.

Cell phones must be on silence and not answered until the end of the class. You are expected not to play, text, etc. with your cell phone during the class.

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**Academic Integrity Statements - Honor Code:**

The Virginia Tech Honor Code applies to this course and will be strictly enforced. For more information, refer to <http://www.honorsystem.vt.edu/>.

All homework submissions that involve working problems MUST contain the following Pledge Statement:

*“I have not received unauthorized aid on this assignment. I understand the answers that I have submitted. The answers submitted have not been directly copied from another source, but instead are written in my own words.”*

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**Americans with Disabilities Act (ADA) Policy Statement**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities.

If you need adaptations or accommodations because of a disability (learning disability, attention deficit disorder, psychological, physical, etc.), if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible.

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