Introduction

Dr. Ted Ralphs
Introductory Stuff

• Welcome back!
• E-mail tkr2
• Office 473 Mohler Lab
• Office Hours MW 12:00-1:00
• Teaching assistant
  – Shantanu Chakraborty
• Check the syllabus for other administrative information
Course Description

• This class is about algorithms, especially those occurring in systems engineering applications.

• We will consider
  
  – how to design algorithms,
  – how to implement them,
  – how to analyze their behavior, and
  – how to use them to solve problems.
General Approach

- The course will be focused on applications.
- The first two weeks will lay the theoretical foundation.
- However, we will spend most of the course discussing the application of algorithms to solving specific kinds of problems.
- We will try to motivate everything we do with examples.
- The laboratories will provide context for the lectures.
Laboratories

- Each laboratory will focus on developing and implementing an algorithm to solve a given scenario-based problem.

- Typical lab requirements
  - **Write a program** implementing a particular algorithm to solve a given problem.
  - **Analyze the algorithm**, theoretically and empirically.
  - **Report your results**.

- During the laboratory itself, you will be asked to accomplish certain milestones in the development of your program.

- The final lab write-up, along with well-commented source code and answers to supplementary problems, will be due at the next lab.

- We will program in **C++** using the **Eclipse** integrated development environment (IDE).
What do I expect you to know already?

- The basics of C++.
- Some basic mathematics.
## Approximate Syllabus

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Course Requirements

- Attendance
- Participation
- Reading
- Laboratories/Homework
- Exams
  - Mid-term
  - Final
Grading

• Your grade will reflect your learning and understanding of the course material.

• Some areas to keep in mind
  – Source code
    ♦ should be well-commented,
    ♦ should compile “out of the box,” and
    ♦ should run correctly.
  – Laboratory write-ups should be clear and concise.
  – Please make sure you follow the instructions.
  – Read the syllabus for more.

• Weighting
  – 50% Labs/Homework
  – 20% Mid-term
  – 20% Final
  – 10% Class Participation
Lateness

• You will get **seven total late days** over the semester.

• Each 24-hour period after the time the assignment is due counts as a late day.

• Your seven late days can be allocated in any way that you like.

• After that, there is a penalty of **10% per day late**.

• No assignment will be accepted more than seven days late.

• For group work, late days will be deducted for each person in the group.

• Please note on your assignment when it was turned in.
Group Work

- I encourage you to discuss ideas with other students and/or with the instructors orally.

- You must do the coding and the write-up yourself.

- YOU MAY NOT COPY ANY PART OF SOMEONE ELSE’S SOURCE CODE OR WRITE-UP.

- NO SHARING OF ELECTRONIC FILES!

- If you work with someone else, please acknowledge them in your write-up.
Use of External References

- The material in this course is covered extensively on the Internet.
- There is source code available for many of the algorithms we will discuss.
- With the exception of source code, you can use this supplementary material to enhance your understanding of course material.
- Please do not abuse this privilege.
- During the laboratories, please don’t use the Internet.
- Outside of the lab, you may use external references for help.
- YOU MUST CITE ANY EXTERNAL REFERENCES YOU USE!!
- You may not copy other people’s source code or anything else off of the Internet or from any other source.
- Above all, please be aware of and do not violate intellectual property laws.
The Textbook

- The textbook covers a lot more ground than we'll have time for in the course.
- There's also a bit more detail than we need in places.
- I will do my best to let you know what is important and what is not.
- The lectures slides will be a good guide.
- The textbook has an associated Web site

http://www.introtoalgorithms.com
Course Web Site

- The course Web site will be at

  http://www.lehigh.edu/~tkr2/teaching/ie170/

- I will post lecture slides before class so you can use them to take notes.
- The slides will be in PDF format.
- All handouts for the class will also be available.
- There will also be links to other relevant sites and reference materials.
- Please read the syllabus.
Approach to Lectures

• Lectures should be as interactive as possible.

• You will get more out of this course if you ask questions during lecture.

• The pace and structure of the lectures can be adjusted.

• I need feedback from you to adjust appropriately.
Feedback

• If you have constructive comments on the way the class is going, please tell me!

• I will be making adjustments as we go, so I strongly encourage you to provide me feedback.

• There will be no retribution for constructive criticism.
Questions?