Structured Problem Solving Using the Computer

Instructor: Chung-Chih Li, Ph.D.

Class Time: 168-1 MW STV-108 9:35~10:50
            168-4 MW STV-108 14:00~15:15

Office Room: Old Union 105

Office Hours: MW - 13:00 ~ 13:50
              Tue - 10:10 ~ 12:15, 13:00 ~ 13:50
              Thu - 11:00 ~ 11:50, 13:00 ~ 13:50

Contact: Tel:(309) 438-7952, Email: cli2@ilstu.edu (email is preferred, unless it’s an emergency)

WebPage of the course: http://www.itk.ilstu.edu/faculty/chungli/ITK168

Prerequisites:
There is no real prerequisite for this class. MAT 104 or high school math is more than enough. Having some experience of using computers is helpful but not necessary. Please keep in mind that you have to get a C or better grade for this course as prerequisite for the follow up course in our program.

Textbooks:

Reference:


Course Description and Purposes:
This course is designed to introduce you to the basic problem solving and program design skills that are used to create computer programs. Topics include problem solving strategies, program design strategies and tools, program testing, object-oriented programming, common algorithms used in computer programs, user interfaces, and the syntax of a high level programming language.

Objectives of the Course: After this course, students should:
1. Be able to describe classical problem solving strategies and use them in solving problems that can be implemented on a computer.

2. Be able to use accepted program design strategies and tools to design and implement a solution for a problem on a computer.

3. Understand the various contexts in which computer programs are written.

4. Be able to develop appropriate testing procedures for a simple program.

5. Be able to write computer programs in a high level programming language.

Examinations: (350 points)

Two midterms and one final exam; 100 points for each midterm and 150 for the final.

- Unless announced otherwise, all tests are accumulative, closed book, and indispensable. No makeup test will be given unless a documented absence is authorized by the university.
- Every student is allowed to bring a self-prepared hand-writing crib sheet to the test. You can write down anything on both sides of one letter-sized paper. No circulation during the test.

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<thead>
<tr>
<th>Tentative Test Schedule</th>
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<tbody>
<tr>
<td>6th week</td>
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<tr>
<td>12th week</td>
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<td>17th week</td>
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Programming Assignments: (250 points)

About 6 programming assignments will be given throughout the semester; some will be teamwork. Teams will be formed randomly upon each assignment. Each team should submit one report and every one in the same team will receive the same score. (See the teamwork section for details.) The weight of each assignment depends on the degree of its difficulty.

Lab: (200+100 points)

You are required to attend the weekly lab associated with this course. Twenty percent of your course grade will be from laboratory activities (200 points) and another ten percent from your lab final (100 points).

All laboratory classes will be held in Old Union. There will generally be assignments to complete before the lab as well as during the lab. Pre-lab activities are due at the beginning of the lab period in which the lab is scheduled. Other lab activities are due at the beginning of the next week’s lab session. Plan to stay for the entire two hour lab period every week. Leaving early without completing everything will affect your participation grade in lab. Beginning in the 4th week, you will have the opportunity to work with another student on your lab exercises. This will be required for 3 weeks, and then becomes optional. In several of the labs, there will be a quiz. These will also count toward your lab grade. The lowest quiz grade will be dropped. Your lowest lab grade will automatically be dropped at the end of the course. This provides you with some flexibility in dealing with assignments that you do not complete or a lab that you do not attend. Missed labs cannot be made up.

Lab Facilities Scheduled laboratory sessions will be held in Old Union. Homework and programming activities may be completed in Old Union 133 and any other labs in Old Union when they are not in use.

Guideline for Submission One should strictly follow the following guideline to submit programming assignments and the final project.
• Put a few comment lines at the beginning of your program files, in which you should clearly indicate every team member’s name and ID and claim the copyright. Also, at the beginning of each method put comments with the name who actually implemented the method. **Student who fails to do so will receive 0 point on the assignment.**

• Submit your assignment with items as described in the following order.
  1. A cover page with names and student ID’s in the team.
  2. A brief summary about the assignment and your approach to the problem. You may include the difficulties you had faced, if any, or why you think your program doesn’t work. It is very common and not a shame to admit that your program doesn’t work under time constraints, but a reasonable self-diagnosis deserves reasonable partial credit.
  3. A hard-copy of the source codes.
  4. A hard-copy of the directly output of your program, if any.
  5. All items described above must be put in a letter-sized Manila folder with your name on it.
  6. Use the web submit described as follows to submit your programs.

**Web Submit**

All programs and programs only should be submitted through Web Submit before the class of the day date. Note: The following procedure is just for reference. Should there be any discrepancy, we will announce it in the class and in the description of your first programming assignment.

1. Link to [http://kirk.itk.ilstu.edu](http://kirk.itk.ilstu.edu)
2. Click on **Submit Your File**
3. Enter `stu168` as ID and `*******` as password. Select **ITK168** and 01 (or 04) for course number and section number, respectively. Then click **Login**
4. Enter `XXXXX` as the ULID, where `XXXXX` is your or your team partner’s ULID. Enter `x` as the project number, where `x` is the number of the assignment. Use **Browse..** to select the file you want to submit. Then click **Submit**. If you have more than one file to submit, repeat this step as necessary.

**Teamwork:** If the assignment is required to work by teams, this is how you split the work. Each team for a programming assignment consists two students. Each person has to implement some codes equally divided. One should write up the summary of the approaches and algorithms used and the other should explain the output of the program, i.e., why we obtain the results according to the implementation. In your report, you have to indicate the person who did the job. However, both of you will receive the same score. Note: If the workload of the teamwork is not reasonable balanced, your score will be lowered. In other words, one does all the teamwork is not a good teamwork.

**Each team has to submit only one report and one set of programs.**

**Try very hard to avoid the following troubles:**

1. Any form and any degree of plagiarism will receive 0 point.
2. If your program contains syntax error, you will receive 0 point.
3. If the hard-copy of the direct output of your program is inconsistent to your program’s design, you will receive 0 point. This is a kind of cheating.
**Class Participation and Attendance**: (100 points) Attendances will be taken impulsively; 10 points will be added if you are present when the attendance is taken. To get these 100 points as many as possible, you should take care of the pop quizzes, attendance, class behaviors, helping peer students inside and outside the classroom, and participation in the googlegroups setup for this course.

**Googlegroups**: One email discussion group will be setup using googlegroups for the class. Every students who currently registered in the course should subscribe to the discussion group at itk168@googlegroups.com. You can subscribe to the group with more than one email address for your convenience. You are encourage to discuss anything related to to the class in this forum such as sharing your experience, asking for help, offering help, hints, opinions, suggestion, even complains or setting up a part for the class. No disgraceful languages, of course. I will not intervene the discussion unless it is necessary. This is your forum.

**Pop quizzes**: Some pop quizzes may be given without notice in advance. Each quiz carries 10 points towards students’ final scores. There are considered as the bonus points. The coverage of every quiz is also accumulative, including the materials that are three-month-old and those covered in the class right before the quiz. A typical quiz takes about 10 minutes. **No makeup quiz will be given if missed.**

**Academic Honesty**: Cheating, plagiarism, collusion, abuse of resource materials, and their consequences are defined and described in ISU 2006-2007 Undergraduate Catalog, Section: Academic Policies and Practices, Article: Academic Integrity (Page 63) and Code of Student Conducts under X.C. Disciplinary Bodies And Procedures – Academic Honesty Cases. Students giving away academic works for assignment offered for credit to other students working on the same assignment will be considered as guilty as academic dishonesty, and will receive the same penalty. More information can be found at: http://www.deanofstudents.ilstu.edu/crr/downloads/Code_of_Student_Conduct.pdf

**Grading Policy**: Your grade is based on the percentage of the total points you receive according to the following scheme. The perfect score depends on how many points are actually given.

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<tr>
<th>Percentage of total points</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90 %</td>
<td>A</td>
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<tr>
<td>80 %</td>
<td>B</td>
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<tr>
<td>70 %</td>
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<td>60 %</td>
<td>D</td>
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<tr>
<td>- - -</td>
<td>F</td>
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**I do not curve!!**

Thus, you don’t have to knock down your friends to get a good grade. In other words, you can’t hide behind someone else, because you two could be both shot down. So, do help your classmates if they need you.

Moreover, if I have good reasons, I have no problem to give all A’s, neither do I have problem to give all F’s.

**Play Ball!!**