

ITK 168
Structured Problem-Solving Using the Computer
Fall, 2008

Instructor: Mary Elaine Califf

Office: Old Union 106

Department: Old Union 202

Phone: Office: 438-5203

Department: 438-8338

Email: mecaliff@ilstu.edu

Office Hours: MWF 11-11:30 and 12:30-1:50 and by appointment

Course Web Site: www.itk.ilstu.edu/itk168

Section Web Site: <http://www.itk.ilstu.edu/faculty/mecalif/ITK168/Fall2008/index.htm>

Web Submit for lab: <http://kirk.itk.ilstu.edu/submit.html>

Catalog Description

Introduction to the development of algorithms for computer systems processing. Emphasis on structured problem solving and the design of problem solutions.

Course Description

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.

Course Objectives

Upon completion of this course you 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.

Textbook

Byron Weber Becker. *Java: Learning to Program with Robots*. 2007. Thomson. ISBN 0-619-21724-3.

Commitment and Time Management

Programming courses are time intensive. You must be prepared to spend the usual 2 hours of study for each hour in lecture **plus** additional time for designing, coding, debugging and executing your programs (10 hours per week when programming is **normal**).

Managing your time will be very important in order for you to succeed in this class. Very likely you have not previously taken a course that requires such a time commitment. You are in control of how you spend your time. Managing your time will be emphasized throughout the semester.

Course Requirements

Exams: This course has two **night** exams and a final. These exams are scheduled for September 24 and November 5 at 8:00 PM. The final exam is scheduled for **Wednesday**, December 10 at 8:00 PM. All of the exams will be held in CVA 147

If you are unable to attend an exam due to illness or another valid reason, you must notify me **prior to** the exam to make arrangements for making up the exam. If you are unable to reach your instructor personally, email me or leave me a voice mail. You should make arrangements **now** to attend the exams.

There will also be a **lab final exam** 2 weeks before the final. This exam **cannot** be made up, so make sure you are there. This will be your opportunity to demonstrate your ability to write Java programs to solve fairly simple problems without help. To prepare for this exam and check your progress, you will take several programming quizzes in lab throughout the semester.

Labs: You are **required** to attend the weekly lab associated with this course. Twenty percent of your course grade will be from laboratory activities. 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.**

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.

Programming Assignments: You will receive several major programming assignments in this course. Solutions must adhere to the design, coding and documentation standards presented in class. For each programming assignment, you will submit the source code using Blackboard. For many programs, you will also be required to turn in some documentation on paper. Both the documentation and submitted code are due at the **beginning** of the class period specified. Programs containing compilation errors will receive failing grades. Those containing run-time errors will incur a substantial penalty. You should make a serious effort to complete all programs on time. You may turn in one program up to 5 days late with no penalty. All other programs will be accepted only until midnight of the day after they are due and will incur a 10% penalty if they are late.

Note that the programming assignments are **individual** work. You may **not** work with another student in the course for any reason or under any circumstances on these assignments. Questions concerning these assignments are best directed to me.

Homework and Quizzes: Ten percent of your grade is based on class participation, homework, and quizzes. You are expected to attend class and be prepared to actively participate. Class time will be used to cover lecture material, clarify readings from the text, answer your questions, and work practice problems. There will be regular quizzes covering topics previously covered in lecture or in your readings. I will provide practice problems which will not be collected or graded. Some of the quiz questions will be based on the practice problems. The quiz/homework grade will be curved at the end. (No other aspect of the course grade will be curved.)

Occasionally, you will be given homework to turn in for grading. This will be announced at the time the assignment is made. If you miss a class, it is your responsibility to get the assignment. Late

homework is not accepted. Note that you are generally permitted to work together on homework assignments.

Plagiarism and other forms of cheating

Knowingly turning in work that you did not do is plagiarism, the most common form of cheating. It is unacceptable in this course and a foolish way to try to get through the course. Do not work with anyone else on programs and other assignments unless you have been told that it is acceptable by your instructor for the specific assignment. Do not work together on individual programming assignments. Do not discuss individual assignments with people other than your instructor. Do not show someone your code, even if the person claims not to intend to cheat. Do not sit in the lab, or anywhere else, and talk about the program. Any case of cheating will result in a minimum penalty of a zero on the assignment. This applies to both the person who did the work and made it available and the person who copied. The maximum penalty will be an F in the course and pursuit of further disciplinary action. All cheating will be reported to CRR as required by university policy.

Bottom line: Do your own work!

Disability Concerns

Any student needing to arrange a reasonable accommodation for a documented disability should contact Disability Concerns at 350 Fell Hall, 438-5853 (voice), 438-8620 (TDD).

Evaluation

Your grade will be determined based on the following distribution:

2-Midterm exams	20%
Lab Final	10%
Written Final	15%
Lab activities (14 weeks)	20%
Programs	25%
Homework, quizzes, and class participation	<u>10%</u>
Total	100%

Your grade is computed as a *weighted average* based on the percentages above. It is **not** your total points divided by the total number of points possible in the course. You may end up with far more points for quizzes or homework than for programs, but your program average will count two and a half times as much as your quiz and homework average.

The grading scale for this course is:

A	90-100 (see note below)
B	80- 89 (see note below)
C	70- 79 (see note below)
D	60- 69
F	Below 60

Important: In order to receive the grades listed above, you must also have at least a 65% exam average to receive a C, a 75% exam average for a B, and an 85% exam average for an A.

Course Resources

There are a number of sources of information for this course:

- Your textbook will be used as a source of readings and some problems for labs and possibly also for individual programming assignment. Make certain to take your textbook to lab when the pre-lab tells you to do so.
- You will be provided vocabulary lists and practice sets for each chapter.
- There is a course-wide website (listed on the first page). This has general information for the course and a link to a weekly calendar with information about the planned topic schedule and links to the laboratory assignments.
- The first page also lists a website specific to my sections of 168. There you will find a daily calendar with reading, recommended problems, and assignments for each day as well as links to the PowerPoint slides for the day.
- I will also be using Blackboard, accessible from icampus or from blackboard.ilstu.edu. This site requires that you log in using your ULID and associated password. You will use this site to submit programming assignments. You will also be able to see you grades there.