

CS 180E FUNDAMENTALS OF PROGRAMMING 1 with java Fall 2004

- Date and time: **Wed. 6:30-9:00 PM**
- Room: STH 135
- Instructor: **bill bonnice** Office: Regis Annex, top floor
- Home phone: 603-888-4807 Office phone: 603-897-8540
- Home e-mail: cflbb@comcast.com E-mail: wbonnice@Rivier.edu

Office hours: Please let me know whenever you need help. Many ideas in this class will be new to you and you will need to study them beyond the classroom in order to understand them fully. You are invited to stop by my office whenever I am there or make an appointment for a different time. I will also respond to e-mail questions. My scheduled office hours are: Mon. 12:30 – 1:30, Tues. 4:30 – 5:30, Fri. 2:30 – 3:30.
and by appointment(Please feel free to call me at home or at my office.).

Course Description: An introduction to problem solving and algorithmic solutions using a modern object-oriented programming language such as Java. Topics include: primitive types, control structures, and simple input/output operations. Emphasis on functional abstraction and recursion, and on user-defined types, data structures, and run-time storage management.

Objectives: In this course students will understand the object-oriented approach for designing and implementing software solutions. Master fundamental programming skills.
Learn problem solving techniques.

Course Material: The course will cover ---

The concept of class and how classes can be used to write programs.
Fundamental control structures, such as conditionals and loops.
Class and method design: instance data, visibility, scope, parameter passing, object references, nested classes.
Arrays and vectors.
Class derivation, class hierarchies, overriding, and polymorphism.
Java I/O classes.

Textbook: *JAVA for Engineers and Scientists* by Gary J. Bronson (ISBN 0 – 534 – 38453-6)
Thompson:Brooks/Cole 2003

The java source code for all the programs in the text and the answers to the odd exercises can be Downloaded from <http://www.brookscole.com/>. See page 802 in the text for guidance on how to do this downloading.

Other Resources:

Professor Sabin is teaching this same course in the day time using the same text. I encourage you to Visit her web site regularly: <http://www.rivier.edu/faculty/msabin/web/fa04cs180a/>

Course Outline:

We will study approximately one chapter each week, moving sequentially through chapters 1 – 10.

Course Work:

Participation:

Students are encouraged to participate in class discussions conducted both in- and outside the classroom. An e-mail group will be set up to facilitate this and, with the permission of those included, a list of phone numbers and e-mail addresses of the students in the class will be circulated.

Reading and Homework Assignments:

Students are required to read thoroughly all the assigned readings. The reading and homework assignments are essential to understanding and learning the material presented in class, to writing the programming assignments and demonstrating mastery of the course material. You must turn in your homework assignments at the start of the next class after they are assigned.

Programming Assignments:

As a rule there will be a programming assignment due each week. In addition, there may be one or significant programming projects for which you will be given more than one week to work on. Students may be required to present a description of such projects to the class.

Although collaboration is encouraged to discuss assignment specifications, language constructs, Java library features, and conceptual aspects of the solution design, the programming assignments must be entirely your own work.

Submit a hard copy with all the Java source files that you wrote (not those taken from the java library or java classes taken from the textbook.).

Include a copy of the output from running your program with *several* sets of test data, *if* data is input. You may paste the output as a comment at the end of your program.

Deadlines for turning in the programming assignments are extremely important. No late submissions are accepted, unless you provide proof that serious medical, personal, or family circumstances prevented you from meeting the deadline. Extensions may be requested only in exceptional cases, approved by the instructor, and will be granted if the request is at least three days prior to the deadline. If you want to receive prompt feedback, start early on writing the program, participate in class and e-mail discussions, and always submit your assignment on time. If your program does not compile, add the first 15-20 lines of compilation errors to the Notepad file.

Make sure that all the source files are properly documented with comments. It is essential at the beginning of each file to include a block comment that has: file name (with extension), author name, programming assignment number, short description, history information: creation date and modification dates with short descriptions about the nature of the code changes and/or additions.

Examinations:

The first test will be on Wed., Sept. 29, and there will be a test every other week from then on. Thus the test dates are Sept. 29, Oct. 13, Oct. 27, Nov. 10, and Dec. 1. The final exam will be on Wed., Dec. 15.

For the final exam, you will be asked to write a java program. You should keep that in mind as the course progresses and, in preparation, you should develop your skills as an independent programmer.

The final exam will be a programming test and will be at our last class, Wed., Dec. 15.

Collaboration while taking tests is cheating and will not be allowed.

Grading:

Final grades are broken up as follows:

| | |
|------------------------------------|--|
| Non-programming Homework Exercises | 15% |
| Programs and Projects | 30% |
| Tests | 30% |
| Final Exam | 20% (10% for Programming part, 10% for question and answer part) |
| Self-evaluation | 5% |

Program Submission Guidelines

Submission of programming assignments and of homework assignments that require you to write Java programs must comply with the following guidelines:

1. Insert a block comment at the beginning of the .java file, in which you provide the following information:
2. **Name of the file**, with extension, as it appears in the file system of the machine on which you did the program development
3. **Your name**, as author of the file
4. The **date** when the file was created
5. If submitting a *homework* assignment, provide the **correct name and number of the homework assignment** to which the program belongs, with information about the **programming project number and page** in the text with which the homework assignment is associated.
6. If *programming* assignment, **correct name and number of programming assignment** to which the program belongs
7. Brief **description of the program** to which the file belongs
 - o Optional: Dates when the program was modified with short description of the changes/additions.

Examples:

1. For example, the block comment given below gives information about the file ConvertTime.java

```
// File:          ConvertTime.java
// Author:       bill bonnice
// Created:      9/9/01
// Program # 3   Programming Project 2.6, page 105 of Lewis and Loftus
```

```
// Convert seconds into hours, minutes, seconds
```

```
// Modified: 9/10/01 complete conversion
```

2. Another example shows the block comment for Programming Project 2.11, page 106 of Lewis and Loftus:

```
// File: MilesPerGallon.java
```

```
// Author: bill bonnice
```

```
// Date: 9/9/04
```

```
// Programming Project 2.11, page 106 of Lewis and Loftus
```

```
// Calculate miles per gallon of gas for a trip
```

3. Provide an 'end' comment for each class and method in your program. For example:

```
public class SomeExample
{
    public static void main(String[ ] args)
    {
        System.out.println("Just an example..");
    } // end main( )
} // end SomeExample
```

Assignment #1 due at the beginning of class on W 9/15:

(A) Study the Syllabus, the text preface, and Chapter 1, Getting Started, pages 1 – 47. Section 1.9, pages 42 – 46 is optional. Pay particular attention to the two sections 1.6, and 1.7, p. 40 –42. For each of these two sections, write down and turn in the most important thing that you learned in that section.

(B) Write up to turn in:

Exercises 1.1, p. 11/ 1d-1, 2, 7.

Exercises 1.2, p. 17/ 1, 2, 3, 5.

Exercises 1.3, p. 23/ 1, 2, 4, 5, 8.

Exercises 1.4, p. 29/ 4.

Exercises 1.5, p. 33/ 1, 2 a – b, 3, 4

NOTE: The answers to the odd-numbered exercises may be downloaded. See p. 802 of the text to see how to do this. For your own maximum learning benefit, you should always do the exercise first and then compare your answer to that given.

(C) **Program # 1:**

Program #1A: Exercise 1.4, p. 29/1.

For extra credit: Exercise 1.4, p. 29/2.

Program #1B: Exercise 1.6, p. 40/5.

For extra credit: Exercise 1.6, p. 39/3.