

# CS152 COMPUTER SCIENCE II

## FALL 2009 SYLLABUS

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**Prerequisites:** CS151 and Math 152

**Course Description:** Further topics in object-oriented programming: enhancing classes (inheritance, polymorphism) and using Application Programmer Interface. Event-driven programming. Elementary searching and sorting techniques. Introduction to software engineering issues. Recursion.

**Instructor:** Irena Pevac

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**Office:** Maria Sanford 303

**Office Hours:** MW 3:15-4:00 PM TR 3:15 - 5:00 PM

### Textbooks:

- Lewis & Loftus, Java Software Solutions: Foundations of Program Design, 5-th Edition, Addison-Wesley, 2007.
- Pevac, [Recursive Examples in Java](http://xanedu.proquest.com/originalworks/Prevac), XanEdu OriginalWorks, 2006.  
<http://xanedu.proquest.com/originalworks/Prevac>

**Course objectives:** Upon successful completion of the course the student will be able to:

- Understand the basic principles of object-oriented programming, and apply them in application settings.
- Write Java programs using appropriate control structures (iteration, selection, recursion).
- Write Java applets and GUI applications.
- Write nontrivial Java code with sufficient degree of proficiency.

### Course Topics Weekly:

- **Week 1: Object Oriented Design**
  - Topics:
    - Review of Chapter 6: Static variables and methods, Class relationships, The *this* reference, Interfaces, Method design
  - Slides: [slides06.ppt](#)

- Assignments:
  - Read Sections 6.1-6.9
- **Week 2: Arrays**
  - Topics:
    - Arrays, Dynamic arrays, ArrayList class
    - Introduction to BlueJ
  - Slides: [slides07.ppt](#)
  - Assignments:
    - Read Sections 7.1-7.7
    - Download, install and get familiar with BlueJ
- **Week 3: Inheritance**
  - Topics:
    - Creating subclasses and class hierarchies
    - Overriding methods.
    - Interfaces. The Comparable Interface
    - Abstract methods and classes
  - Slides: [slides08.ppt](#)
  - Assignments:
    - Read sections 8.1-8.5
- **Week 4: Polymorphism and sorting**
  - Topics:
    - Polymorphism (via inheritance and via interfaces)
    - The sorting problem: selection, insertion and bubble sorts
    - Sorting arrays of objects
  - Slides: [slides09.ppt](#)
  - Assignment:
    - Read sections 9.1 – 9.4
- **Week 5: Searching**
  - Topics:
    - Linear search
    - Binary search
  - Slides: [slides09.ppt](#)
  - Assignments:
    - Read section 9.5
- **Week 6: Exceptions**
  - Topics:
    - Exceptions and exception handling
    - The try-catch statement
    - Exception propagation
  - Slides: [slides10.ppt](#)
  - Assignments:
    - Read sections 10.1-10.6
- **Week 7-8: Recursion**
  - Topics:

- Recursive methods
  - Recursion on integers
  - Recursion on arrays
  - Recursion in graphics
- Slides: [slides11.ppt](#)
- Assignments:
  - Read sections 11.1-11.3
  - Read Chapters 2,3 and 6 from recursion book
- **Week 9: Introduction to Graphics**
  - Topics:
    - Introduction to graphics
    - Writing simple applets
    - Writing GUI applications: containers, frames, panels
    - Graphical objects: labels, buttons
  - Slides: [slides02.ppt](#), [slides03.ppt](#), [slides04.ppt](#)
  - Assignment: Read Sections 2,7-2.9, 3.9, 4.5 – 4.8.
- **Week 10: More Graphics**
  - Topics:
    - Drawing with loops and conditionals
    - Determining event sources
    - More GUI objects: dialog boxes, check boxes, and radio buttons
  - Assignments:
    - Read Sections 5.9 – 5.12.
- **Week 11: GUI Design**
  - Topics:
    - GUI design
    - Layout managers
    - Containment hierarchies
  - Slides: [slides06.ppt](#)
  - Assignments:
    - Read Sections 6.10 – 6.13
- **Week 12: Polygons and polylines**
  - Topics: Polygons and polylines
  - Slides: [slides07.ppt](#)
  - Assignment:
    - Read Section 7.8
- **Week 13: Mouse and Key Events**
  - Topics: Mouse events and key events.
  - Slides: [slides07.ppt](#)
  - Assignments:
    - Read Sections 7.8 – 7.10
- **Week 14 : Adapter classes, event processing**
  - Topics:
    - Extending adapter classes

- Event processing and polymorphism
  - Slides: [slides08.ppt](#)
  - Assignments:
    - Read Sections 8.7, 8.8, 9.6 – 9.10
- **Week 15 : Linked Lists**
  - Topics:
    - Dynamic structures
    - Linked lists
    - Stacks
    - Queues
  - Assignments:
    - Read Sections 12.1-12.5

**Course Requirements:** Two tests, five projects, and a final exam.

**Schedule for the projects, tests and final exam**

- P1 09-18-2009 10 points                      P2 10-02-2009 10 points
- P3 10-23-2009 10 points                      P4 11-13-2009 10 points
- P5 12-05-2009 10 points

Projects should be submitted before the due dates (at 10AM). If project is up to three days late, there will be 2 points late penalty. After that time project is no longer acceptable.

Both tests are 15 points each

MW class	T1 10-14-2009	T2 11-18-2009
TR class	T1 10-15-2009	T2 11-19-2009

Final exam (20 points) is scheduled by the university.

Minimal score for each letter grade:

- A 93% A– 90% B+ 87% B 83% B– 80% C+ 77% C 73% C– 70% D+ 67% D 63% D– 60%

**University Policies:**

- You must take the final examination at the time specified in the course selection book.
- Please contact me privately to discuss your specific needs if you believe you need course accommodations based on the impact of a disability, medical condition, or if you have emergency medical information to share. I will need a copy of the accommodation letter

from Student Disability Services in order to arrange your class accommodations. Contact Student Disability Services, room 241, Copernicus Hall if you are not already registered with them. Student Disability Services maintains the confidential documentation of your disability and assists you in coordinating reasonable accommodations with your faculty.

- In the event of a weather emergency which requires curtailment or cancellation of classes, listen to WTIC (1080 AM) or call (860) 832-3333 for the “general snow message.”
- The last day to withdraw from a course is midterm date **October 26, 2009**. Approvals for withdrawal are not required; however, it is strongly recommended that students consult with their academic advisors prior to deciding to withdraw. Cessation of attendance, notice to the instructor, or telephone calls to the Enrollment Center are not considered official notice of a student’s intention to drop the course.
- After the midterm, withdrawals are allowed only under extenuating circumstances and require approval of the course instructor, department chair and dean of the School of Arts and Sciences.
- You are responsible for understanding and abiding by the University’s policy on academic integrity. Information on the policy may be found at <http://www.ccsu.edu/AcademicIntegrity/>. This policy is rigorously enforced by the Department of Mathematical Sciences.

#### **Resources Available:**

- If you need help, take advantage of your instructor's office hours. Do not wait until just before the first test to do so.
- Form a study group with other students in your section. Explaining solutions to homework problems and projects with each other is a good way to learn.
- Check with the department secretary, in MS 303, phone 860.832.2710 for the names of possible tutors.