

School of Computer Science

Course Title: Computer
Programming III

Date: October 3, 2007

Course Number: COP 4338

Number of Credits: 03

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| Subject Area: Programming | Subject Area Coordinator: Jai Navlakha email: navlakha@cis.fiu.edu |
| Catalog Description: SCS Web page | |
| Textbook: <i>Core Java, Volume II</i> (Horstmann and Cornell), Prentice-Hall for the Java material <i>C++ for Java Programmers</i> (Weiss), Prentice-Hall for the C++ material. | |
| References: <i>javasoft.com website has additional material on some of the advanced topics.</i> | |
| Prerequisites Courses: <i>COP-3530 Data Structures</i> | |
| Corequisites Courses: None | |

Type: Required

Prerequisites Topics:

- Significant Java programming experience
- Mastery of the Collections API
- Ability to make choices to achieve efficient programs

Course Outcomes:

- O1. Master Java multithreading and serialization**
- O2. Master simple Java networking**
- O3. Be familiar with reflection in Java**
- O4. Be exposed to web programming such as applets and servlets**
- O5. Be familiar with all elements of modern C++ programming including templates, inheritance, STL**
- O6. familiar with elements of C programming, including the use of pointers required for C and legacy C++, and time permitting, JNI**
- O7. Master writing program solutions to problems using the above features**

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Outline

| Topic | Number of Lecture Hours | Outcome |
|--|--|------------------------|
| <ul style="list-style-type: none"> • Java Objects <ul style="list-style-type: none"> ○ Object class ○ Reflection ○ Proxies | 4 | O3 & O7 |
| <ul style="list-style-type: none"> • Multithreading | 4 | O1 & O7 |
| <ul style="list-style-type: none"> • Net-Centric Comp <ul style="list-style-type: none"> ○ Sockets, etc ○ Applets ○ CGI scripts ○ servlets | 4 | O2, O4 & O7 |
| <ul style="list-style-type: none"> • Serialization | 3 | O1 & O7 |
| <ul style="list-style-type: none"> • Other Java topics, instructor's choice <ul style="list-style-type: none"> ○ Garbage Collection ○ Security ○ RMI ○ JDBC ○ Swing | 3 | |
| <ul style="list-style-type: none"> • C++ <ul style="list-style-type: none"> ○ Pointers, arrays ○ Classes ○ Operator Overloading ○ Inheritance ○ Templates ○ STL | 13 | O5 & O7 |
| <ul style="list-style-type: none"> • C | 4 | O6 & O7 |
| <ul style="list-style-type: none"> • JNI | 3 | O6 & O7 |

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Course Outcomes Emphasized in Laboratory Projects / Assignments

| Outcome | Number of Weeks |
|---------|-----------------|
| O3 | 1 |
| O1 | 1 |
| O1 & O2 | 1 |
| O1 | 1 |
| O5 | 1 |
| O5 | 1 |
| O5 | 1 |
| O6 | 1 |
| O6 | 1 |

**Oral and Written Communication:
None**

**Social and Ethical Implications of Computing Topics:
None**

Approximate number of credit hours devoted to fundamental CS topics

| Topic | Core Hours | Advanced Hours |
|--|------------|----------------|
| Algorithms: | | 0.5 |
| Software Design: | | 1.5 |
| Computer Organization and Architecture: | | |
| Data Structures: | | |
| Concepts of Programming Languages: | | 1.0 |

Theoretical Contents: None

Problem Analysis Experiences

9 Programming Assignments

Solution Design Experiences

9 Programming Assignments

The Coverage of Knowledge Units within Computer Science Body of Knowledge¹

| Knowledge Unit | Topic | Lecture Hours |
|-----------------------|-------------------------|----------------------|
| NC 4 | Net-Centric Comp | 3 |
| NC 5 | Net-Centric Comp | 1 |
| PL 2 | VMS | 1 |
| PL 6 | OOP | 6 |
| SE 2 | C++ STL | 5 |
| PF 5 | Applets | 2 |
| OS 3 | Multithreading | 6 |

¹See <http://www.computer.org/education/cc2001/final/chapter05.htm> for a description of Computer Science Knowledge units