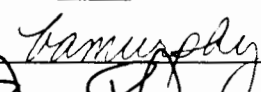


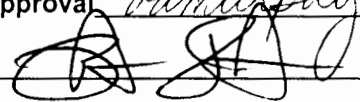
# COUNTY COLLEGE OF MORRIS

## Course Information Outline

Course Title Computer Science I PREFIX&NUMBER CMP 128

Lecture Hours 2 Laboratory Hours 2 Credit Hours 3 Course Fee \$40

Department Chairperson Approval  Date 10/15/12

Division Dean Approval  Date 10/16/12

### General Education Information:

#### Categories:

- ☐ Communications    ☐ History    ☐ Humanities    ☐ Mathematics  
☐ Science    ☐ Social Science    ☒ Technological Competency  
☐ Diversity (check if course also meets diversity category)

#### Integrated Goals: (check all that apply)

- ☐ Ethical Reasoning and Action    ☒ Information Literacy

#### 1. Catalog Course Description

In this introductory course, students obtain fundamental computer science knowledge and develop programming skills using an object-oriented approach, incorporating security awareness, human-computer interactions and social responsibility. This course provides students with a basic foundation in computing history, computing careers, computer organization, operating system responsibilities, software development process, algorithm design and analysis, programming paradigms, and human interaction design.

#### 2. Prerequisite(s)

MAT 011 Basic Math, Placement basis OR ENG 025 or ENG 022 or ENG 007

#### 3. Co-requisite(s)

None

#### 4. Textbooks

Invitation to Computer Science. 5<sup>th</sup> ed. Schneider, G. Michael, and Judith L. Gersting. Course Technology, 2010.

Introduction to Programming Using Java. Version 6, Eck, David J.  
<http://math.hws.edu/javanotes6/> (free on-line textbook)

#### 5. Supplementary Books and/or Materials

USB Drive for saving classwork.

#### 6. Specialized equipment, supplies, facilities, for classes limited by enrollment or restricted by accreditation and/or equipment limitations. (Information will be used to determine differential funding category.)

Computer lab equipped with the Java JDK, Eclipse/NetBeans IDE, TextPad with Java Extensions, Microsoft Visio.

Revised 12/7/2011

**7. Course Content (List of Topics)**

- Historical context of computing (1 hour): history of computing and programming.
- Computing Careers (1 hour).
- Ethical conduct (1 hour): codes of ethics and responsible conduct; intellectual property, copyright, and plagiarism; "Ten Commandments for Computer Ethics".
- Programming languages (1 hour): binary code, assembly code, third-generation languages; compilation versus interpretation; comparison of object-oriented, procedural, functional programming and scripting.
- Machine level representation of data (1 hour): overview of the storage of instructions, numbers and characters in a Von Neumann machine.
- Software tools and IDE (2 hours): compiling, interpreting, linking, executing, testing and debugging.
- Fundamental programming constructs (11 hours): basic syntax and semantics of a high-level language; variables (scope and lifetime), types, expressions, and assignment; self-documentation; standard and file I/O; conditional and iterative control structures; structured decomposition; methods.
- Fundamental algorithms and problem-solving (6 hours): problem-solving strategies; the role of algorithms in the problem-solving process; implementation strategies for algorithms; debugging strategies; the concept and properties of algorithms.
- Fundamental data structures (6 hours): primitive types, arrays, strings, references.
- Secure code (2 hours): data validation; exception handling; data encapsulation; information hiding and integrity; strict data typing.
- Overview of operating systems (1 hour): role and purpose of operating systems; file management.
- Human-computer interaction (1 hour): design concepts and fundamental graphical interface design; standard API graphics.
- Program development process (3 hours): program development phases, with emphasis on design, implementation, and testing and debugging strategies.

**8. Statement of Course LEARNING OUTCOMES**

Using software development tools and following a program development process, plan, design, create, test and debug computer programs that demonstrate basic high-level programming language concepts, algorithms and data structures.

- Incorporate human-computer interaction design strategies in program development.
- Relate important events in computing history.
- Describe different career options in computing.
- Identify ethical conduct as it relates to computing.
- Compare and contrast different programming language paradigms and programming levels.
- Describe machine-level data storage.
- Identify operating system roles and responsibilities.

**9. Statement of Relation to Curriculum(s)**

Required course for A.S. in Computer Science.

Required course for A.A.S. in CIS-Management Information Systems Option 3501.

Required course for A.A.S. CIS-Technical Support Option 3502.

Required course for A.A.S. CIS-Game Development Option 3504.

Technical elective for A.A.S. CIS-Administrative Support Option 3503.

Technical elective for A.A.S. Digital Media Technology 3530.

PREFIX & NUMBER: CMP128

10. Format for offering the course (check all that apply)

☒ Traditional

☒ On-Line

☒ Hybrid