



## **CMIS102: Introduction to Problem Solving and Algorithm Design (3)**

Guam 2009 Fall Session 1 is from 24 August to 14 October 2009

Navy Base Guam on Monday & Wednesday from 6:00PM to 8:45PM

Section A202 Class Number 84096

### **Faculty Contact Information:**

- ◆ Robert Laurie
- ◆ Office Hours: By appointment at a time convenient for all concerned.
- ◆ Telephone: (671) 366-7132
- ◆ E-mail: [rlaurie@asia.umuc.edu](mailto:rlaurie@asia.umuc.edu)
  - Your first class activity: Send me an e-mail introducing yourself.
  - When sending me an e-mail to please include in the subject: class, name, and topic.  
For example: "CMIS102-NAVY, John Doe, Self Introduction"

### **Course Description**

A study of techniques for finding solutions to problems through structured programming and step-wise refinement. Topics include principles of programming, the logic of constructing a computer program, and the practical aspects of integrating program modules into a cohesive whole. Algorithms are used to demonstrate programming as an approach to problem solving, and basic features of a modern object-oriented language are illustrated. Students may receive credit for only one of the following courses: CMIS 102, CMIS 102A, or CMSC 101.

### **Course Introduction**

This course provides an introduction to the design of solutions to computer-solvable problems. Students learn how to use data types, files, arrays, and subprograms, and basic programming control structures such as sequence, selection (decisions), and repetition (loops).

Also, students acquire a fundamental understanding of object-oriented programming design, concepts, and constructs, and then apply this knowledge through extensive practice of the Program Development Cycle. Though real-world examples, students learn how to analyze a problem, design a program to solve it, write the programming code to implement it, and test the solution to locate and correct programming errors.

### **Course Goals/Objectives**

Upon successful completion of this course, the student will achieve the following objectives:

1. After completing this course, you should be able to:
2. trace the evolution of computing as a profession
3. be aware of and uphold ethical principles in computing
4. demonstrate and explain the execution of sequential, conditional, and iterative programming statements
5. use the process of stepwise refinement to construct programs
6. create and use functions and recognize the use of value and reference parameters
7. document programs effectively and create and use test data
8. create, compile, and execute simple programs written in a modern object-oriented language

**Course Materials:**

1. Textbook: Prelude To Programming: Concepts & Design 4th'09,  
Stewart Venit, Publisher: Pearson Education, Inc.,  
Addison Wesley; 4 edition, 2008, ISBN: 9780321521750

**Grading Information and Criteria:**

The final grade will determined as described in the tables below by using the grading scale below and assigning equal weights to examinations, lab exercises, and projects.

| Activities           | Amount      | Points | Weight |
|----------------------|-------------|--------|--------|
| Mid-term Examination | 1           | 100    | 25%    |
| Final Examination    | 1           | 120    | 30%    |
| Quizzes              | 4 @ 15 pts. | 60     | 15%    |
| Projects             | 6 @ 20 pts. | 120    | 30%    |
| Total                |             | 400    | 100%   |

| Grade | Percent        |
|-------|----------------|
| A     | 100.0 to 90.0% |
| B     | 89.9 to 80.0%  |
| C     | 79.9 to 70.0%  |
| D     | 69.9 to 60.0%  |
| F     | < 60%          |

**Examinations and Quizzes:**

The midterm examination will be administered Week 5 of the course and will cover material from Chapters 1-4 of the textbook. The final examination will be administered in the last class of Week 8 and will be comprehensive with primary focus on material from Chapters 5, 6, and 8 of the textbook.

**Projects:**

Project assignments of various point values will be given throughout the term. Completed project reports must be submitted on the due dates. Late assignments will be reduced 25% of the total point value for each class period late. No projects will be accepted after the final exam time.

Grading will be 80% objective (results, explanations, conclusions) and 20% subjective (neatness, clarity, conciseness, extra work). A project report that minimally meets all specifications will receive a score of 80% of the total points. If any portion of a project is plagiarized, the entire project will receive a score of zero.

**Attendance:**

Class attendance is mandatory. If you miss a class meeting, it remains your responsibility to obtain information concerning the material covered and upcoming assignments. Excessive absences may result in your being assigned a grade of F(n)! Failure due to non-attendance.

**Additional Information**

You are required to adhere to the general rules of sound classroom etiquette. You are expected to arrive on time for each class session. If you depart the classroom before the ending time, you will not receive credit for attendance unless you have the permission of the instructor. Each student is expected to complete class assignments and exams on the due date. Late assignments and exams will be reduced by 50% for each class period late, unless you have the permission of the instructor. Each student is responsible for completing the readings and written assignments, reviewing the postings of the assignments, and taking the mid-term and final examinations.



## Course Schedule

This is a tentative schedule and may be modified by instructor as circumstances deem necessary. All readings and assignments are from the text book. Please read the sections to be covered prior to the class meeting.

| Week | Readings, Assignments, and Due Dates   |
|------|--|
| 1    | The instructor will discuss syllabus and present an overview of the course.<br>Read and discuss Chapter 0 – Introduction<br>Read and discuss Appendix A, Decimal, Binary, and Hexadecimal representations<br>Handout: Number Systems and Codes |
| 2    | Quiz #1<br>Assignment #1, due<br>Read and discuss Chapter 1 - An Introduction to Programming<br>Read and discuss Chapter 2 - Developing a Program  |
| 3    | Quiz #2<br>Assignment #2, due.<br>Read and discuss Chapter 3 - Selection Structures: Making Decisions  |
| 4    | Quiz #3<br>Assignment #3, due<br>Read and discuss Chapter 4 - Repetition Structures: Looping<br>Review for the Mid-Term  |
| 5    | Assignment #4, due<br>Mid-term Examination<br>Read and discuss Chapter 5 - More About Loops and Decisions  |
| 6    | Read and discuss Chapter 6 - Arrays: Lists and Tables<br>Quiz #4   |
| 7    | Assignment #5, due<br>Read and discuss Chapter 8 - More about Program Modules and Subprograms  |
| 8    | Review for the Final Exam<br>Assignment #6, due<br>Final Examination at start of second class Week 8.  |