CENTER FOR APPLIED INFORMATION TECHNOLOGY
TOWSON UNIVERSITY

AIT 500: Fundamentals of Computer Programming and Data Structures
Credit Hours: 6
Prerequisite: Admission to CAIT certificate programs

Description: This course will address the following topics: structured problem solving, algorithm development, fundamentals of computer programming, basic data structures and their implementation, sort and search techniques, and an introduction to the design and development of information systems.

Learning Objectives:

1. Understand and use the concepts of structured problem solving
2. Understand the use of abstraction in problem solving
3. Learn to program using a high-level Object Oriented programming language
4. Understand and use the basics of software development principles
5. Understand and implement various data structures (Lists, Trees, etc.)
6. Utilize different sort and search algorithms
7. Understand the concepts of Inheritance, Encapsulation, and Polymorphism
8. Understand the role of Application Programming Interfaces (API's)

Suggested Textbooks:

1. Dale, N., Weems, C., Headington, M., *Programming and Problem Solving with Java*, Second edition, Jones & Bartlett
2. Weiss, M., *Data Structures and Problem Solving Using Java*, Third edition, Addison Wesley
3. Deitel, H. and Deitel, P., *JAVA How to program*, Sixth edition, Prentice Hall