Department of Computer Science  
INFS 515 Computer Organization  
Spring 2018

Instructor: Dr. Lei He  
E-mail: lhe3@gmu.edu  
Classroom: Innovation Hall 136  
Day & Time: Mon 7:20pm – 10:00pm  
Office Hour: By appointment

Course Description
Computer hardware architecture concepts including arithmetic and logical operations, number systems, machine representation of numbers, instruction set formats, addressing techniques, memory organization, internal processor structure and operation. Symbolic assembly language and fundamental operating systems concepts: process synchronization and scheduling, interrupt and memory management, virtual memory, file I/O and disk management. Credit cannot be applied to a graduate degree in the Volgenau School or the BS degree in computer science.

Textbooks

☐ Required  
The Architecture of Computer Hardware and System Software: An Information Technology Approach, by Irv Englander  

Course Format
Lectures will be given by the instructor. Besides material from the textbook, topics not discussed in the book may also be covered. Handouts of material not covered in the book will be made available. Grading will be based on homework assignments and exams.

Course Outcome
As an outcome of taking this class, a student will be able to
- Understand the basic concepts and techniques related to computer systems, including both hardware and software;
- Know the current standards and protocols of computer network and the Internet;
- Read research papers pertaining to modern computing technologies.
Grading

Grades will be based on two examinations (30%), homework (40%), research paper review (20%), and class participation (10%).

- **Examinations (30%)**
  All examinations are closed books, see the class schedule for the exam weeks. Make up exams and incompletes will not be given for this class.

- **Homework (40%)**
  Homework writing assignments will be posted to your Blackboard account after each chapter. Working on your homework is critical to develop a deep understanding of the course topics. The homework assignments will not be graded based only on the correctness. The instructor will also record your efforts to solve problems. Proper documentation and typed homework is required.
  <**Late Work**> Homework is due at the beginning of class on the due date. Late work will not be accepted.

- **Research Paper Review (20%)**
  You will review two papers of your selection on specific course topics (e.g., parallel computing, Internet), based on which a review report will be developed. More detailed requirements will be given in the assignments.

- **Class Participation (10%)**
  Requirements include class attendance, active participation in discussions and in-class problem solving. Please let the instructor know in advance if you expect to be absent for any reason. If you must miss a class due to an emergency or documented illness, email the instructor as soon as possible. You are still responsible for any material covered, assignments given, and homework due during the missed classes unless pre-approved by the instructor. Each absence without prior notice will result in a 2% deduction on the grade.

Tentative Class Schedule

Time may not permit the coverage of all the chapters of the book. The pacing below is not rigid, and the list is subject to change. The topics will be:

- Week 1: Computer, systems concepts and systems architecture
- Week 2: Numbers and data formats
- Week 3: Data representation
- Week 4: Little man computer
- Week 5: CPU and memory
- Week 6: Input and output
- Week 7: Exam 1.
- Week 8: Computer peripherals
- Week 10: Modern computer systems
- Week 11: Networks and data communications
- Week 12: Ethernet and TCP/IP
- Week 13: Operating systems
- Week 14: File management
Week 15: Internal operating system

Week 16: Exam 2

Honor Code Statement

Disability Accommodations
If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 993-2474, http://ods.gmu.edu. All academic accommodations must be arranged through the ODS.