

**Professor:** Dr. Robert S. Alexander  
**Telephone:** (301) 807-3569  
**E-mail:** robert\_s\_alexander@yahoo.com  
**Office Hours:** Thursdays 6:30-7:15pm in  
SEOR Adjuncts' office, or by appointment

**SYST 680/ECE 670 – PRINCIPLES OF C4I**  
**Course Syllabus**

**COURSE OVERVIEW:** This course provides an introduction to analytic principles supporting Command, Control, Communications, Computers, and Intelligence (C4I). The principles and analytic techniques presented are applicable to a wide range of civilian and military situations involving decision-making under uncertainty. The sensing, fusion, and situation assessment processes are studied in detail. Optimal decision making rules are derived. Modeling and simulation of combat operations are discussed. The concepts of C4 architectures are discussed. Tools to evaluate and design C4 systems such as queuing theory are developed.

**COURSE GOAL:** The overall goal of the course is to prepare students to be cognizant of analytic techniques for C4I applications, for example, as military decision-makers, advisors to decision-makers, or as critical observers of the acquisition, research, or operational planning processes within the U.S. or other military or commercial organizations.

**COURSE OUTLINE:**

1. Introduction to C4I
2. Target detection, tracking, and identification
3. Data fusion, situation assessment, Bayesian networks
4. Decision theory, optimal decision-making
5. Modeling and Simulation
6. Queueing theory and applications
7. C3 architecture