

Naval Postgraduate School  
Department of Computer Science  
Checklist for MSCS Degree  
6203P Subspecialty Code  
**(Revised: November 2008)**

Name/Rank/Service: \_\_\_\_\_  
Month/Year Enrolled: \_\_\_\_\_  
Projected Graduation Date: \_\_\_\_\_  
CS Track: \_\_\_\_\_

**1. Masters Thesis:**

Thesis Credits: \_\_\_\_\_ (No more than four segments of CS0810)

Title: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Advisor(s): \_\_\_\_\_

Second Reader: \_\_\_\_\_

**2. Core Courses:**

**All of the following courses must be completed or validated:**

- \_\_\_ CS2020 (CS2900) Introduction to Objects & Programming (4-2) (Fall/Spr)
- \_\_\_ CS3000 Great Principles of Computing Technology (4-1) (Fall/Spr)
- \_\_\_ CS2011 (CS3010) Computing Systems Principles (4-0) (Fall/Spr)
- \_\_\_ MA3025 Logic & Discrete Mathematics (4-1) (Fall/Spr)
- \_\_\_ OS3307 Modeling Practices for Computing (4-1) (Win/Sum)
- \_\_\_ CS3600 Introduction to Computer Security (4-2) (Fall/Win/Spr/Sum)
- \_\_\_ CS3101 (CS3601) Theory of Formal Languages and Automata (4-0) (Win/Sum)
- \_\_\_ CS3021 (CS3901) Intro to Data Structures & Intermediate Programming (4-2) (Win/Sum)
- \_\_\_ CS4900 Technology & Transformation I (0-2) (Win/Sum)
- \_\_\_ CS3310 Artificial Intelligence (4-1) (Fall/Spr)
- \_\_\_ CS3070 (CS3450) Operating Systems (3-2) (Fall/Spr)
- \_\_\_ CS3502 Computer Communications & Networks (4-2) (Fall/Spr)
- \_\_\_ CS3150 (CS3650) Design and Analysis of Algorithms (4-0) (Fall/Spr)
- \_\_\_ CS4901 Technology & Transformation II (0-2) (Fall/Spr)
- \_\_\_ CS3113 Introduction to Compiler Writing (3-2) (Win/Sum)
- \_\_\_ CS3060 (CS3320) Database Systems (3-1) (Win/Sum)
- \_\_\_ CS3022 (CS3902) Programming Paradigms (4-2) (Win/Sum)
- \_\_\_ SW3460 Software Methodology (3-1) (Win/Sum)
- \_\_\_ CS3004 (CS3204) Human-Computer Interaction (3-2) (Fall/Spr)

### 3. Military Requirements:

#### All U.S. Navy & Marine Corps

\_\_\_NW3230 Strategy & Policy (4-2) (Fall/Win/Spr/Sum)

#### All U.S. Navy Unrestricted Line & Restricted Line *except* Engineering Duty Officer

\_\_\_NW3275 Joint Maritime Operations Part 1 (4-0) (Fall/Win/Spr/Sum)

\_\_\_NW3276 Joint Maritime Operations Part 2 (2-2) (Fall/Win/Spr/Sum)

\_\_\_NW3285 National Security Decision Making (4-0) (Fall/Win/Spr/Sum)

#### All Marine Corps & Army

\_\_\_MN3331 Principles of System Acquisition & Program Management (5-1)

#### *Optionally recommended for Marine Corps students:*

\_\_\_SE4011 (SI4011) Systems Engineering for Acquisition Managers (3-2)

#### International Military

\_\_\_IT1500 Informational Program Seminar for International Officers (4-0)

\_\_\_IT1600 Communication Skills for International Officers (3-0) (if required by the International Office)

\_\_\_IT1700 Academic Writing for International Officers (2-0) (if required by the International Office)

**4. Track Requirements:** *U.S. Navy students must complete one of the first three tracks listed below. Other services and International students may choose any one of the tracks listed. (Circle the completed track and initial each applicable course and specialization sequence.)*

#### **NETWORK & MOBILITY TRACK:**

*Students must take the following Network & Mobility Track Sequence:*

- \_\_\_ CS4550 Computer Networks II (4-0) (Win/Sum) (Prereq. CS3502)
- \_\_\_ CS4552 Network Design & Programming (3-3) (Fall/Spr) (Prereq. CS4550)
- \_\_\_ CS4554 Network Modeling & Analysis (4-0) (Win/Sum) (Prereq. CS4550)
- \_\_\_ CS4556 Business Economics Network Technology (4-0) (Fall/Spr)
- \_\_\_ CS4533 (CS4130) Wireless Mobile Computing (3-2) (Fall) (Prereq. CS3502)
- \_\_\_ CS4535 (CS4135) Mobile Devices (3-2) (Fall/Spr) (Prereq. CS4533 (CS4130))
- \_\_\_ CS4537 (CS4137) Wireless Data Services (3-2) (Win) (Prereq. CS4533 (CS4130))
- \_\_\_ CS4538 (CS4138) Mobile & Wireless Security (3-1) (Win) (Prereq. CS4533 (CS4130) and strongly suggest CS4535 (CS4135) & CS4537 (CS4137))

#### **INFORMATION SECURITY & ASSURANCE TRACK:**

*Students must take the following Information Security & Assurance Core Sequence:*

- \_\_\_ CS3670 Information Assurance: Secure Management of Systems (3-2) (Fall/Spr) (Prereq CS3600)
- \_\_\_ CS3690 Network Security (4-2) (Win/Sum) (Prereq CS3600, CS3502)
- \_\_\_ CS4600 Secure Computer Systems (3-2) (Fall/Spr) (Prereq CS3600, CS3450, CS3502)
- \_\_\_ CS4605 Security Policies, Models & Formal Methods (3-1) (Win/Sum) (**Prereq CS3600, CS3150 (CS3650) and CS3101 (CS3601)**)

*Select one (1) of the following Information Security & Assurance Track Specialization Sequences:*

##### **Network Security –**

- \_\_\_ CS4678 Advanced Vulnerability Assessment (4-2) (Win) (Prereq CS3113, CS3070 (CS3450), CS3690) (Non-U.S. students take CS3695 (CS3675) Network Vulnerability Assessment (3-2) (Win/Sum) (Prereq CS3502) instead);
- \_\_\_ CS4615 Formal Analysis of Security Protocols (4-2) (Spr) (Prereq CS3600);
- \_\_\_ CS4614 Advanced Topics in Computer Security (3-1) (Win/Sum) (Prereq CS3600, CS4600, CS4605);
- \_\_\_ CS4538 (CS4138) Mobile and Wireless Security (3-1) (Spr) (Prereq CS3600, CS3690, CS4537 (CS4137)).

##### **Intrusion Detection and Response –**

- \_\_\_ CS4675 Intrusion Detection and Response (3-1) (Win) (Prereq CS3600);
- \_\_\_ CS4322 Internet Information Systems (3-2) (TBD) (Prereq CS2020 (CS2900), CS3310);
- \_\_\_ CS4550 Computer Networks II (4-0) (Win/Sum) (Prereq CS3502);

\_\_\_ CS4614 Advanced Topics in Computer Security (3-1) (Win/Sum) (Prereq CS3600, CS4600, CS4605).

### **Exploitation and Crime –**

- \_\_\_ CS3610 Information Crime, Law and Ethics (4-0) (Fall);
- \_\_\_ CS4677 Computer Forensics (3-2) (Fall/Spr) (Prereq CS2011 (CS3010), CS3600, CS3670);
- \_\_\_ CS4322 Internet Information Systems (3-2) (TBD) (Prereq CS2020 (CS2900), CS3310);
- \_\_\_ CS4554 Network Modeling and Analysis (4-0) (Win/Sum) (Prereq CS3502).

### **Security Requirements and Analysis –**

- \_\_\_ CS4650 Application of Security Evaluation Criteria for Information and Software Assurance (3-1) (Spr) (Prereq CS3600, CS4600);
- \_\_\_ CS4615 Formal Analysis of Security Protocols (4-2) (Spr) (Prereq CS3600);
- \_\_\_ CS4680 Introduction to Certification and Accreditation (3-2) (Fall/Spr) (Prereq CS3600, CS3670, CS3690); *U.S. students only*;
- \_\_\_ CS4614 Advanced Topics in Computer Security (3-1) (Win/Sum) (Prereq CS3600, CS4600, CS4605).

### **Computer Network Operations –**

- \_\_\_ CS4678 Advanced Vulnerability Assessment (4-2) (Win) (Prereq CS3113, CS3070 (CS3450), CS3690) (*Non-U.S. students take CS3675 Network Vulnerability Assessment (3-2) (Win/Sum) (Prereq CS3502) instead*);
- \_\_\_ CS4677 Computer Forensics (3-2) (Fall/Spr) (Prereq CS2011 (CS3010), CS3600, CS3670);
- \_\_\_ CS4680 Introduction to Certification and Accreditation (3-2) (Fall/Spr) (Prereq CS3600, CS3670, CS3690); *U.S. students only*;
- \_\_\_ CS4650 Application of Security Evaluation Criteria for Information and Software Assurance (3-1) (Spr) (Prereq CS3600, CS4600).

### **Forensics –**

- \_\_\_ CS4677 Computer Forensics (3-2) (Fall/Spr) (Prereq CS2011 (CS3010), CS3600, CS3670);
- \_\_\_ CS4678 Advanced Vulnerability Assessment (4-2) (Win) (Prereq CS3113, CS3070 (CS3450), CS3690) (*Non-U.S. students take CS3675 Network Vulnerability Assessment (3-2) (Win/Sum) (Prereq CS3502) instead*);
- \_\_\_ CS4614 Advanced Topics in Computer Security (3-1) (Win/Sum) (Prereq CS3600, CS4600, CS4605);
- \_\_\_ CS4615 Formal Analysis of Security Protocols (4-2) (Spr) (Prereq CS3600).

## **SOFTWARE ENGINEERING & ARCHITECTURE TRACK:**

*Students must take the following Software Engineering & Architecture Core Sequence:*

- \_\_\_SW4500 Introduction to Formal Methods in Software Engineering (3-1) (Prereq. SW3460)
- \_\_\_SW4583 Principles of Software Design (3-1)
- \_\_\_SW4591 Requirements Engineering (3-1)
- \_\_\_SW4592 Software Risk Assessment in DoD (3-1)

*Select one (1) of the following Software Engineering & Architecture Track Specialization Sequences:*

**Software-Intensive System Development** – Choose four (4) of the following:

- \_\_\_SW4530 Software Engineering Research and Development in DOD (3-1)
- \_\_\_SW4540 Software Testing (3-1)
- \_\_\_SW4560 Software Evolution (3-0)
- \_\_\_SW4570 Software Reuse (3-0)
- \_\_\_SW4580 Design of Embedded Real-time Systems (3-0)
- \_\_\_SW4581 Software Reliability (3-1)
- \_\_\_SW4582 Weapons System Software Safety (3-1)
- \_\_\_SW4590 Software Architecture (3-1)
- \_\_\_SW4600 Automata, Formal Specification & Verification (3-1)
- \_\_\_SW4920 Advanced Topics in Systems Software Safety (3-0)
- \_\_\_IS4300 Software Engineering and Management (3-2)
  - \_\_\_or IS4031 Information Systems Economics (4-0)
  - \_\_\_or MN3309 Acquisition of Embedded Weapon Systems Software (4-0)
  - \_\_\_or MN3331 Principles of Systems Acquisition and Program Management (5-1)
- \_\_\_SW4930 Introduction to Software Engineering Doctoral Studies (3-0)
- \_\_\_SW4932 Advanced Area of Software Engineering Doctoral Studies (3-0)

**Autonomous Systems** – Choose four (4) of the following:

- \_\_\_CS4313 Robotics (3-2)
- \_\_\_CS4315 Learning Systems and Data Mining (3-1)
- \_\_\_CS4317 Language Systems (3-2)
- \_\_\_CS4330 Introduction to Computer Vision (3-2)
- \_\_\_MV4100 Cognitive Engineering (4-1)
- \_\_\_SW4580 Design of Embedded Real-Time Systems (3-0)

**AUTONOMOUS SYSTEMS TRACK:**

*Students must take the following Autonomous Systems Core Sequence:*

- \_\_\_ CS4313 Robotics (3-2)
- \_\_\_ CS4315 Learning Systems and Data Mining (3-1)
- \_\_\_ CS4317 Language Systems (3-2)
- \_\_\_ CS4330 Introduction to Computer Vision (3-2)
- \_\_\_ MV4100 Cognitive Engineering (4-1)

*Choose three (3) of the following Autonomous Systems Track Specialization courses:*

- \_\_\_ CS4112 Distributed Operating Systems (3-2);
- \_\_\_ CS4533 (CS4130) Wireless Mobile Computing (3-2);
- \_\_\_ CS4322 Internet Information Systems (3-2);
- \_\_\_ MV4015 Agent-Based Autonomous Behavior for Simulations (4-2);
- \_\_\_ MV4025 Cognitive and Behavioral Models for Simulations (3-2);
- \_\_\_ EC4460 Artificial Neural Networks (3-1);
- \_\_\_ ME4822 Guidance, Navigation, and Control of Marine Systems (3-2).

**CS-MOVES OPTION**

Students interested in a Master of Science in Computer Science degree with a focus on modeling, simulation and virtual environments may choose the CS-MOVES Option as their track. Specialization sequence coursework will be coordinated by the student working with his/her MOVES thesis advisor, and must be approved as part of the thesis proposal.

**5. Credit Hour Requirements:**

- \_\_\_ 40 graduate credit hours at or above the 3000 level (CS/MV/SW)
- \_\_\_ 12 of the 40 graduate credit hours must be at the 4000 level (CS/MV/SW)

**6. Certification:** I certify the information contained on this form is correct.

Name: \_\_\_\_\_ Date: \_\_\_\_\_