

Naval Postgraduate School  
 Cyber Academic Group  
 Graduation Checklist for MSCSO/MSCS/MSES/MSEE Degrees (326)  
 6208P Subspecialty Code  
**(Revised: WINTER AY18)**

Name/Rank/Service: \_\_\_\_\_  
 Month/Year Enrolled: \_\_\_\_\_  
 Projected Graduation Date: \_\_\_\_\_  
 CSO Track: Operational Computational Electrical Engineering Engineering Science

**1. Thesis/Capstone: *proposal must be approved by end the 3<sup>rd</sup> or 4<sup>th</sup> academic quarter (not counting Qtr-0), prior to taking any CS0810 thesis research blocks.***

Title: \_\_\_\_\_  
 Advisor(s): \_\_\_\_\_  
 Co-Advisor / Second Reader (*circle one*): \_\_\_\_\_  
 Joint Thesis Members, if applicable: \_\_\_\_\_

**2. Core Courses: *all of the courses below must be completed or validated to graduate. Students must submit by the end of their 3<sup>rd</sup> academic quarter a plan for completing all core courses not yet taken as part of their Track selection, and also populate their course matrix in Python.***

<u>Completed</u>	<u>Planned Qtr</u>
___ CS3600 Introduction to Computer Security (4-2) (Fall/Win/Spr/Sum)	_____
___ CS3040 Low-Level Programming I (4-2) (Fall/Spr)	_____
___ EC3730 Cyber Network & Physical Infrastructures (3-2) (Fall/Spr)	_____
___ CY3000 Intro to Cyber Systems & Operations (3-0) (Fall/Spr)	_____
___ EC3760 Information Operations Systems (3-2) (Win/Sum)	_____
___ CS3690 Network Security (4-1) (Fall/Spr)	_____
___ CS3250 Intro to Cyber Physical Systems (3-2) (Win/Sum)	_____
___ CY3800 Topics in Signal Operations (3-0) (Win/Sum)	_____
___ EC3740 Reverse Engineering (3-2) (Win/Sum)	_____
___ CS4900 Technology & Transformation (2-0) (Win/Sum) (OPS/CS only)	_____
___ CS4901 CSO Research Methods (1-0) (Fall/Spr)	_____
___ CY4400 Cyber Mission Planning w/Capstone (3-2)	_____

NPS Graduation Checklist for MSCS Degree

**3. Track: All CSO students will select one of the following Tracks. Circle choice above, and initial each completed course or annotate when it will be taken.**  
**See the NPS catalog for prerequisites and offering quarters for all courses listed below.**

- **COMPUTATIONAL TRACK (CSO-CS):** (PO: LT Tye Wylkynsone AA: Karen Burke)

***Students must take the following CS Degree Requirements:***

- CS3101 Theory of Formal Languages and Automata (4-2) (Fall/Spr)
- CS3310 Artificial Intelligence (4-1) (Fall/Spr)
- CS3502 Computer Communications & Networks (4-2) (Win/Sum)
- CS3600 (part of the CSO/326 Core)

***Three track courses are required:***

- OS3307 Modeling Practices for Computing (4-1) (Fall/Spr)
- CS3070 Operating Systems (3-2) (Win/Sum)
- CS4315 Learning Systems and Data Mining (3-1) (Fall/Spr)

***Finally, one concentration area of four courses will be taken:***

**Network Operations:**

- CS4552 Network Design & Programming (3-3)
- CS4554 Network Modeling & Analysis (4-0)
- CS4558 Network Traffic Analysis (3-2)
- CS3140 / CS4648 / CS4678 (*pre-req: CS3140*)  
(Elect one from Offensive Cyber Operations concentration)

**Defensive Cyber Operations:**

- CS4558 Network Traffic Analysis (3-2)
- CS4677 Computer Forensics (3-2)
- CS4684 Cyber Security Incident Response & Recovery (3-2)
- CS3140 / CS4648 / CS4678 (*pre-req: CS3140*)  
(Elect one from Offensive Cyber Operations concentration)

**Offensive Cyber Operations:**

- CS3140 Low-Level Programming II (3-2)
- CS4678 Advanced Cyber Vulnerability Assessment (4-2)
- CS4648 Advanced Cyber Munitions (3-2)
- 1 Cyber Operations or Computation Elective as approved by Academic Team

To wit: \_\_\_\_\_

NPS Graduation Checklist for MSCS Degree

- **OPERATIONS TRACK (CSO-OPS):** (PO: LCDR Brian Judy AA: Duane Davis)  
***Students must take the following CSO Degree Requirements:***

- \_\_\_ CY4410 Cyber Policy and Strategy (3-0)
- \_\_\_ CY4700 Applied Defensive Cyber Operations (3-3)
- \_\_\_ CY4710 Adversarial Cyber Operations (3-3)

***In addition, the following courses are required plus one (1) elective:***

- \_\_\_ OS3307 Modeling Practices for Computing (4-1) (Fall/Spr)
- \_\_\_ CS3070 Operating Systems (3-2) (Win/Sum)
- \_\_\_ CS3502 Computer Communications & Networks (4-2) (Win/Sum)
- \_\_\_ CY3650 Cyber Data Management and Analytics (4-0)
- \_\_\_ CS4558 Network Traffic Analysis (3-2)
- \_\_\_ EC4765 Cyber Warfare (3-2)
- 1 additional Operations Track Elective as approved by Academic Team

To wit: \_\_\_\_\_

- **ELECTRICAL ENGINEERING TRACK(MSEE):**  
(PO: LCDR(sel) Bryan Martin AA: Preetha Thulasiraman)

***Students may make the following EE Core change:***

- \_\_\_ EC3700 Joint Network-Enabled Warfare (3-2) in lieu of CY3800, provided:  
1) possess an undergraduate ECE degree that is ABET accredited  
2) take EC2650 as a refresher

***In addition, the following courses are required plus four (4) electives:***

- \_\_\_ EC3710 Computer Communications Methods (3-2)
- \_\_\_ EC4730 Covert Communications (3-2)
- \_\_\_ EC4745 Mobile Ad Hoc Wireless Networks (3-2)
- \_\_\_ EC4765 Cyber Warfare (3-2)
- \_\_\_ EC4770 Wireless Communications Network Security (3-2)
- \_\_\_ EC3000 Introduction to Graduate Research Seminar [P/F] (1-0)  
(in lieu of CS4900)

- Four (4) Engineering track electives approved by the Academic team

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NPS Graduation Checklist for MSCS Degree

- **ENGINEERING SCIENCES TRACK(MSES):**

- (PO: LCDR(sel) Bryan Martin AA: Preetha Thulasiraman)

*The following courses are required for the track plus six (6) electives:*

\_\_\_ CY3800 Topics in Signals Operations (3-0; Part of CSO/326 Core)

\_\_\_ EC4730 Covert Communications (3-2)

\_\_\_ EC4765 Cyber Warfare (3-2)

\_\_\_ EC4770 Wireless Communications Network Security (3-2)

\_\_\_ EC3000 Introduction to Graduate Research Seminar [P/F] (1-0)  
(in lieu of CS4900)

Six (6) Engineering track electives approved by the Academic team

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**4. Additional Military Requirements:**

**All U.S. Navy & Marine Corps students**

\_\_\_ NW3230 Strategy & War (4-2)

**All U.S. Navy Line Officer students (*except Engineering Duty Officers*)**

\_\_\_ NW3275 Joint Maritime Operations Part 1 (4-0)

\_\_\_ NW3276 Joint Maritime Operations Part 2 (2-2)

\_\_\_ NW3285 Theater Security Decision Making (4-0)

**All U.S. Marine Corps & Army students**

\_\_\_ MN3331 Principles of System Acquisition & Program Management (5-1)

*Recommended for all Marine Corps students; may be dropped only with concurrence of the Senior Marine Office.*

**International Military students (*as required by the International Office*)**

\_\_\_ IT1500 Informational Program Seminar for International Officers (4-0)

\_\_\_ IT1600 Communication Skills for International Officers (3-0)

\_\_\_ IT1700 Academic Writing for International Officers (2-0)

**5. Credit Hour Requirements:**

\_\_\_ 40 graduate credit hours at 3000-4000 level, with at least 12 of those hours at 4000 level.

\_\_\_ 28 of the 40 graduate credit hours must be in CS, MOVES, SW courses.

**\*\* No more than 4 (OPS/CS) or 5 (EE/ES) sections of CS0810 may be taken, and no more than 2 sections may be taken during a given quarter.**

NPS Graduation Checklist for MSCS Degree

**6. Student Certification:** I certify that the information on this form is correct, and that I have completed all requirements for the MSCS degree, with any course deviations from my Specialization sequence listed below (must be approved by Academic Advisor).

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Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**7. Academic Advisor approval:** Specialization courses above are approved.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**8. Program Officer final review:** Checklist complete.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_