

CYBR382: Defensive Information Warfare

College of Graduate and Continuing Studies, Norwich University

[Print This Page](#)

Course Description

3 credits

This course introduces students to the overall concept of Defensive Information Operations (D-IO), which are conducted across the range of military operations at every level of war to achieve mission objectives. Combatant commanders and mission owners must carefully consider their defensive posture and strategy in order to deter and defeat adversary intrusion while providing mission assurance. Upon completion of this course, students will be able to develop a defensive strategy by analyzing threats, cyberspace terrain, mission priorities, and utilizing threat intelligence.

Learning Outcomes

At the end of this course, students should be able to:

1. Identify and analyze Key Terrain in Cyberspace.
2. Explain the Intelligence Process in defensive operations.
3. Utilize cyber threat intelligence.
4. Design priority intelligence requirements (PIRs) for alert management.
5. Describe the cyber kill chain model.
6. Perform center of gravity and critical capability analysis.
7. Define the fundamental security design principles; Explain various threat capabilities.
8. Explain various threat capabilities.
9. Design and evaluate threat courses of action (COAs).
10. Implement the diamond model for threat modeling.
11. Understand how to navigate the ATT&CK Framework to research threat tactics, techniques, and procedures.
12. Explain various applications of machine learning in defensive operations.

Weekly Outline

The weekly breakdown of your course is:

Week	Weekly Topic	Assignments
Week 01	Cyber Threat Intelligence	Readings, Discussion, Assignment 1
Week 02	Defense Design	Readings, Discussion, Assignment 2
Week 03	Mission Analysis and Center of Gravity	Readings, Discussion, Assignment 3
Week	Advanced Persistent Threats	Readings, Discussion, Assignment 4, Research Project

04		Proposal Assigned
Week 05	Adversarial Models	Readings, Discussion, Assignment 5
Week 06	Cyber Analytics	No Readings, Discussion, Assignment 6
Week 07	Detection and Response	Readings, Discussion, Assignment 7, Research Project Proposal Outline due
Week 08	Research	No Readings, Discussion, Research Project Final

Required Textbooks

There are no required textbooks used in the course. All readings are from online journals, internet sites, and Kreitzberg Library links. All Required Reading assignments are listed by week on the Assigned Readings page.

In lieu of a writing handbook, we strongly recommend that students use the [Purdue Online Writing Lab](#) as a primary writing resource. They have extensive writing guides for APA, MLA, Chicago styles. Your instructor will provide additional writing guidance.

Grading Criteria

Each week you will have a variety of assignments to complete and each assignment will be graded based on the category it falls into. Grading for the weekly discussions will be based on quality of your posts (initial and response posts). Remember, discussion questions are designed to foster intellectual conversation regarding the subject. Discussion post responses that lack intellectual merit are not acceptable and have no place in this course (i.e. Good job!, Great post!, I agree.....).

All written academic work must be submitted by the deadline specified in the assignment and late submissions must be telephonically discussed with the instructor. Written work must be formatted in accordance with the *Publication Manual of the American Psychological Association* (6th Edition) and will be graded in accordance with the APA Guidelines for Written Work as detailed in the Norwich University rubric.

Discussion Groups

In this course, you will be assigned to a small discussion group (if class size permits). Each week your group will discuss at least one question; all questions will be graded. You are expected to contribute *a minimum of at least three posts* to each question every week. The quality of your posts and those of your fellow students will create a lively discussion and ensure that a high level of learning takes place.

Your **first** post should be substantive (approximately 150-250 words) and it should be made by **Tuesday** (the earlier you make your initial posts, the more your classmates, and you, will have to work with). Your deadline for first post is Wednesday night after which time you will lose points for the week. It should answer the question using your own experience, if appropriate, and, very importantly, it should refer to the readings of that week, using correct APA citations. You should all conduct additional readings and research beyond the readings and resources provided for each week in order to completely answer the discussion question.

Your **second** two posts should be responses to posts made by your fellow group members. This is a minimum requirement as you are expected to respond to more posts in order to have a lively discussion. Responses such as, "Good point," or, "I agree," are not sufficient. Your response posts should be substantive—ask questions, point out additional thoughts, spur deeper insights and thoughts, etc. Posts should build on the course content

and add momentum to our collective learning. Disagreement and critical feedback are part of an academic classroom, as is respect for the diversity of opinion. Above all, respect for each other as learners is paramount. Challenging, disrespectful, abusive, or profane language will not be tolerated in any form.

For more information about what is expected in regard to discussion postings, please review the Weekly Discussion Rubric and Discussion Guidelines in the Resource area of this classroom.

[Assignments](#)

Students are required to submit a Final Research Project. The intent of the final project is to provide students the opportunity to study in depth a particular topic in defensive information warfare in which they find interesting. The project must incorporate course materials as needed. Some examples of course projects include case-studies, research papers, programming challenges, or defense designs. The project should be narrow in scope and have a clear goal and end state. At a minimum, the proposal must include the end state of the project, its relevance and importance in defensive information warfare, and an overview of initial research of the topic.

The final project should relate to topics discussed in the course. The project must contain some conclusive results driven by research, case-studies, and/or experimentation conducted by the student. Specific requirements will be discussed between the instructor and the student during the project proposal process.

The instructor will elaborate on specific guidelines in the first two weeks of the course. The instructor will also provide guidance and suggestions on project topic and tips for refining the project outline as needed.

[Late Paper Submission](#)

It is important that writing assignments and discussion posts be completed on time. Extensions of deadlines will be given only for serious extenuating circumstances. In the absence of such extensions, assignments may be downgraded for lateness at the discretion of the instructor.

[Submission Deadlines](#)

Discussions officially close on Saturday of each week at 11:55 PM Eastern time. Posts submitted after that time will not be graded.

Research outline and the Final Paper are due on their assigned dates at 11:55 PM Eastern time.

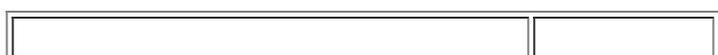
[Extra Credit Submissions](#)

Extra credit submissions and the length of such submissions require advanced approval by your instructor. Instructors are not required to use the grading rubric, or provide rubric scores. Instructors do not have to provide the same level of formal feedback on extra credit submissions as they do on essay assignment, but should provide whatever level of useful feedback is appropriate.

The **maximum** grade based on word-count is 0.005 credit/word, or 5 points per 1,000 words. Thus a student who agrees to submit a 2,000-word essay on a specific topic approved in advance may have **up to 10** points added to the "Extra Credit" column in the grade book. These points are added to the total points accumulated.

Extra credit assignments cannot be used as a substitute for missed research papers. The way to obtain credit for missed research papers is to request permission to submit the paper late.

[Grades](#)



Graded Activity	% of Grade
Discussions (8 x 100 points)	20 %
Written Assignments (7 x 100 points)	56 %
Final Project Outline	5 %
Final Project	19 %
TOTAL	100 %

Letter grades for the course will be based on the following grading scale:

Letter Grade	Percentage	Grade Point
A	93-100%	4.0
A -	90-92.9%	3.7
B +	87-89.9%	3.3
B	83-86.9%	3.0
B -	80-82.9%	2.7
C +	77-79.9%	2.3
C	75-76.9%	2.0
C -	73-74.9%	1.7
D +	70-72.9%	1.3
D	67-69.9%	1.0
D-	63-66.9%	0.7
F	0-62.9%	0.0

For complete information on the Grading Policy for Bachelor Degree students, please refer to the [CGCS Online Catalog](#) (Sub-Section of Catalog on "Grades.")

[Academic Honesty and the Norwich University Honor Code](#)

A student must submit work that represents the student's own original analysis and writing. Copying another's work is not appropriate. If the student relies on the research or writing of others, the student must cite those sources. Words or ideas that require citations include, but are not limited to all hardcopy or electronic publications, whether copyrighted or not, and all verbal or visual communication when the content of such communication clearly originates from an identifiable source. While students are encouraged to seek editing feedback, extensive revisions of one's work by another person is considered a lack of academic honesty, as it is representing another student's work as one's own.

For more information see:

[Academic Dishonesty](#)

[Academic Integrity](#)

[Norwich University Honor Code](#)

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[Section 504 of the Rehabilitation Act of 1973/ADA](#)

Please consult [Appendix H: University Policy - Section 504 of the Rehabilitation Act of 1973/Americans with Disabilities Act \(ADA\)](#) for instructions on obtaining an accommodation.

Disclaimer: Please note the specifics of this Course Syllabus are subject to change. Students are responsible for abiding by any such changes. Your instructor will notify you of any changes.

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