# Bachelor of Science in Cybersecurity, Cyber Operations

The goal of academic advising is to further enhance the educational mission of the university and create quality, accessible advising partnerships with all students in a positive environment that supports student success. This advising sheet is for tracking purposes toward degree completion and is subject to change. Students also may track their academic progress via STAR Degree Check through STAR at www.star.hawaii.edu. Academic Advising appointments may be scheduled by calling 808-689-2689 or toll-free from neighbor islands at 866-299-8656.

**Graduation Requirements (see the 2025-2026 catalog for any additional graduation requirements):**

☐ 45 Upper Division Credits Minimum
☐120 Total Credits Minimum
☐ 30 UHWO Credits
☐ 3 Upper Division Writing Intensive Courses
☐ Focus Requirements (OC, HAP, ETH)
☐ 2.0 *UHWO GPA*
☐ 2.0 *CONCENTRATION GPA*

**Note: Some courses may be applied more than once to fulfill General Education, Core, or Concentration Requirements. Double-counted courses do not reduce the number of credits required for the concentration. Students are still responsible for meeting the minimum number of credits in the concentration and the overall total credits for graduation*

## General Education Requirements: 31 credits (*21 credits see note above)

| Credits | Course Alpha / Number / Title |
|---|---|
| 3 | Foundations Written Communications (FW)<br>ENG 100 Composition I |
| 0* | Foundations of Quantitative Reasoning (FQ) **MATH 115 Statistics** |
| 6 | Foundations Global and Multicultural Perspectives (FG):<br>6 credits from two ***different*** groups (A, B, C):<br>*Group A: Primarily before 1500 CE (e.g., HIST 151 or ANTH 151)<br>*Group B: Primarily after 1500 CE (e.g., HIST 152 or ANTH 152)<br>*Group C: Pre-history to present |
| 6 | Diversification Arts, Humanities & Literature (DA, DH, DL):<br>6 credits from two different areas |
| 0* | Diversification Social Sciences (DS): 6 credits from two different areas: **SSCI 301** |
| 3 | Diversification Social Sciences (DS): Different area from above |
| 3 | Diversification Natural Sciences (DB, DP, DY):<br>3 credits from the biological sciences (DB): |
| 0* | 3 credits from the physical sciences (DP): **PHYS 151** |
| 0* | 1 credit of laboratory (DY): **PHYS 151L** |

## Writing Skills Requirements: 3 credits

| Credits | Course Alpha / Number / Title |
|---|---|
| 3 | ENG 200 Composition II or ENG 209 Business Writing |

## Cybersecurity Math and Statistics Requirements: 17 credits

| Credits | Course Alpha / Number / Title |
|---|---|
| 3 | MATH 115 Statistics *(Will satisfy FQ in General Education Above)* |
| 4 | MATH 241 Calculus I |
| 4 | MATH 242 Calculus II |
| 3 | MATH 301 Introduction to Discrete Mathematics |
| 3 | SSCI 210 Statistical Analysis I |

## Cybersecurity Lower Division Core Requirements: 25 credits

| Credits | Course Alpha / Number / Title |
|---|---|
| 3 | ICS 101 Digital Tools for Info World |
| 3 | ICS 111 Introduction to Computer Science I |
| 3 | ICS 129 Introduction to Databases (Previously ICS 113) |
| 3 | ICS 184 Introduction to Networking |
| 3 | ICS 211 Introduction to Computer Science II |

| Credits | Course Alpha / Number / Title |
|---|---|
| 3 | ICS 240 Operating Systems |
| 3 | ISA 275 Security Essentials OR CSNT 275 Security Essentials |
| 3 | PHYS 151 College Physics *(Will satisfy DP in General Education Above)* |
| 1 | PHYS 151 L College Physics Lab *(Will satisfy DY in General Education Above)* |

## Cybersecurity Upper Division Core Requirements: 21 credits

| Credits | Course Alpha / Number / Title |
|---|---|
| 3 | ISA 320 Fundamentals of Secure Software Programming |
| 3 | ISA 330 Introduction to Proactive System Security |
| 3 | ISA 340 Introduction to Digital Forensics |
| 3 | ISA 400 Management of Information Security |
| 3 | ISA 450 Modern Cyber Conflicts |
| 3 | ITS 410 IT Project Management (WI) |
| 3 | SSCI 301 Methods & Techniques in Social Science Research *(Will also count as DS in General Education Above and ETH Focus if designated at the time of completion)* |

## Cyber Operations Concentration Requirements: 15 credits

| Credits | Course Alpha / Number / Title |
|---|---|
| 3 | ISA 360 Cyber Competitions |
| 3 | ISA 430 Cybersecurity for Supervisory Control and Data Acquisition |
| 3 | ISA 480C Topics in ISA: Communications |
| 3 | ISA 480I Topics in ISA: Cyber Investigations |
| 3 | ISA 480R Topics in ISA: Cyber Detection and Response |

## Capstone Requirement: 3 credits

| Credits | Course Alpha / Number / Title |
|---|---|
| 3 | CYBR 486C Senior Project or CYBR 490C Senior Practicum (WI) |

## Electives:15 credits

See your Student Success Counselor to determine how many elective credits are needed.
*See recommended Electives under Notes.

| Credits | Course Alpha / Number / Title |
|---|---|
| 3 | Upper Division (300-400 Level) *(Recommend Upper Division WI if needed)* |
| 3 | |
| 3 | |
| 3 | |
| 3 | |

- Recommended Electives:
  - MATH 103 College Algebra (or MATH 103 M/L) – this is a prerequisite to MATH 140X which is needed before MATH 241 Calculus I (if you do not place into Calculus I)
  - MATH 140X Accelerated Precalculus - this is a prerequisite to MATH 241 Calculus I (if you do not place into Calculus I)
  - DATA 340 Business Intelligence
  - DATA 342 Practical Programming
  - DATA 348 Business Analytics

**NOTES:**
The faculty contacts for this program are Dr. J. Burrell at jb743@hawaii.edu or (808) 689-2479, and Michael Miranda at mmirand1@hawaii.edu or (808) 689-2481.