

# Graduate Certificate in Cybersecurity

2 Graduate Certificate Create 2021-22

## I. General Catalog Information

The faculty member originating this proposal is to complete sections I,II, and III.

TURN ON help text before starting this proposal by clicking  in the top right corner of the heading.

You will need to turn on help text again after any actions that refresh the page including after saving proposals, importing information, or running impact reports.

FILL IN ONLY fields required marked with an \*. You will not be able to launch the proposal without completing the required fields.

Department\*

IDGP - Cybersecurity

Degree Type\*

Graduate and Advanced Graduate Certificate

Program Type\*

Certificate

Certificate Name\* Graduate Certificate in Cybersecurity

Total Required Credits\* 12

Term of First Enrollment\*

Fall 2021

Graduate Coordinator for Proposed Certificate\*

Greg Moody

Certificate Type\*

- Graduate (minimum bachelor's degree required for admission)  
 Graduate Advanced (minimum master's degree required for admission)

How will this academic program be delivered when the program begins?

- 100% face-to-face courses  
 Hybrid (some online courses, some face-to-face courses)

(mark all that apply)\*  100% online courses

Typical Time to Degree\* 1 year

**Admission Term Deadlines:**

Deadlines for each semester must be on or before: Fall - August 1st, Spring - December 1st, Summer - May 1st

Admission Terms\*  Fall  
 Spring  
 Summer

Application Deadlines\* Same as listed above

Provide the proposed CIP code Same as MS Cybersecurity program

## II. Certificate Information

### Required Additional Documents

Please attach required documents by navigating to the Proposal Toolbox and clicking  in the top right corner.

- a. Certificate Financial Aid Reporting Form – Available on the [Graduate Curriculum](#) page
- b. Three Year Academic Assessment Plan – Available from [UNLV Office of Academic Assessment](#)
- c. Two (2) letters of support
  - i. Chair/Director of the academic unit that will offer the certificate
  - ii. Academic Dean

*Each letter must verify that the proposed certificate has received faculty approval through the appropriate governance procedures, as well as the existence of necessary resources to support the Certificate as presented in the proposal.*

- d. Five Representative Course Syllabi (for certificates with fewer than 5 courses, provide all course syllabi)

Documents Required for Submission to be Complete

- Certificate Financial Aid Reporting Form – Available on the Graduate Curriculum page
- Three Year Academic Assessment Plan – Available from UNLV Office of Academic Assessment
- Two (2) letters of support
- Five Representative Course Syllabi (for certificates with fewer than 5 courses)

**Executive summary describing the proposed certificate program\***

The Certificate in Cybersecurity (CSEC) program is a graduate certificate program, designed for individuals who want to acquire specific cybersecurity skills to meet the needs or demands of their workplace. The certificate program is suitable for students with no prior cybersecurity background, as well as for those who have prior cybersecurity knowledge or education and want to acquire specific additional skills (retooling). The following are examples of students who can benefit from the program:

- Individuals who have graduated from an cybersecurity or related program several years ago who can use the Certificate in Cybersecurity program to stay current with technology changes.
- Cybersecurity professionals who want to retool themselves to acquire new skills.
- Individuals with no formal prior cybersecurity education who want to learn about a particular technology or concept in the field of cybersecurity.

**Explanation of how the proposed certificate is related to existing undergraduate and/or graduate programs, and how this certificate will provide knowledge and skills not already available to current or potential UNLV students.\***

It is related to the MS CSEC program, it would be used as a potential feeder portal for students who are interested in cybersecurity. This certificate would be used as a way to recruit and gather students into the full MS Cybersecurity program. By allowing students who may not completely meet the requirements for the degree (MS) program, this would allow more students to be admitted into the courses and to then evaluate whether they could complete the entire program. It would also allow potential applicants a way to try out the program before they commit to an entire two years. Thus, this would enable the program to provide more growth, at the same time having an opportunity for those that wish to acquire some cybersecurity skills to do so at a smaller scale than the MS cybersecurity program.

It would also be beneficial to other programs in technology (MIS or CS), who wish to have a specialty in cybersecurity. As each of these disciplines currently send students into this field, those students would be highly interested in formally having cybersecurity on their academic resumes and to enhance their skills and abilities in those areas, and thereby making them better job candidates for careers in cybersecurity.

**A statement describing the profile of potential certificate students and market demand for the certificate program, including, related occupations, job placement opportunities and market trend data when available.\***

The demand for the certificate is similar to that of the MS Cybersecurity program (details below).

There are currently several hundred unfulfilled jobs for cybersecurity within the state of Nevada alone, and thousands along the Pacific coast and Southwestern region of the US. This has created a huge demand for students with this skillset, however, very few programs that specialize in cybersecurity exist in the country, and in our region of the country especially.

Thus, there is a huge market demand for such professionals, which pushes many such individuals that wish to start in that career to reach out to universities for formal education. This information is supported at <http://www.cyberseek.org> - which is an approved national level website used for cybersecurity professionals in terms of placement and career opportunities.

Given the lack of produced experts from higher education, even a certificate is helpful for individuals hoping to start within cybersecurity, especially given the professional credential pathways that are available through certifications.

This certificate would enable those with good professional skills to further advance their career trajectory

**Description of the academic unit's capability for offering this certificate; including administration of the program, faculty resources and expertise, and other required resources.\***

This would be based on existing courses in the MS CSEC program, and require no additional resources, but would allow more students to potentially enter this program.

The IDGP faculty would be in charge of this program in conjunction with the MS cybersecurity program. It consists of seven foundational faculty in MIS and CS.

Students in the certificate program add no additional resource burden as the courses that they would take are being offered as part of the MS Cybersecurity program. Further, by allowing for some students to take courses through the certificate program, course enrollments would be further bolstered.

Bylaws for the certificate program would be subsumed and managed by means of the structures afforded by the MS Cybersecurity program.

**Description of the administration of the certificate, including:**

**Number of students anticipated to be enrolled and strategies for recruitment:\***

5 - initial students during the first year of the program. We anticipate that when the MS Cybersecurity program is running at full capacity that around 10% of students would be in the certificate program, largely consisting of working professionals, and current CS and MIS students at UNLV. Thus, this certificate would likely grow to 10-15 students currently enrolled after 3-5 years. students

**Submission of new courses (if necessary for certificate program) to the Graduate Course Review Committee.\***

None

**A detailed budget for the establishment and administration of proposed certificate program, including acknowledgement of what additional resources (if any) are required in order to offer proposed certificate.\***

None, built on existing courses in the MS Cybersecurity program.

**Description of any accreditation requirements, off-campus partnerships or other details involving campus-wide and/or external partnerships or affiliations.\***

None beyond those needed for the MS Cybersecurity program.

**Please list the number, names and rank of faculty who will be supporting the instruction for this proposed program\***

Dr. Moody, Cybersecurity Director  
Dr. Kim, IDGP Cybersecurity faculty member  
Dr. Jo, IDGP Cybersecurity faculty member  
Dr. Naroz, IDGP Cybersecurity faculty member  
Dr. Hu, IDGP Cybersecurity faculty member  
Dr. Lee, IDGP Cybersecurity faculty member  
Dr. Hardin, IDGP Cybersecurity faculty member  
Jorge Fanseco, IDGP Cybersecurity faculty member

**Student Authentication – Federal guidelines require that distance education and correspondence programs utilize mechanisms that verify student identity. UNLV strives to insure that this is done with all programs, not just those delivered via distance education. Describe how this program will verify student identity. (for more information on student authentication see the UNLV [Office of Online Education](#) and [WICHE](#))**

**Describe how this program will verify student identity.\***

Program is in-person.

We note that given current COVID restrictions, some courses will be online until we can return to fully in-person.

**Learning Outcomes\***




Please see attached Learning outcomes map, highlights displayed below:

1. Evaluate the computer network and information security needs of an organization
2. Assess cybersecurity risk management policies in order to adequately protect critical resources and assets
3. Formulate, update and communicate regarding organizational cyber-related strategies and policies

[Click here](#) to view the Graduate Catalog (for Reference)

### III. Graduate Catalog Content and Degrees Directory

Follow these steps to build the new certificate curriculum:

1. Click on  "View Curriculum Schema." Click 'Add Core' and name your core (please use a comparable degree program in the current graduate catalog as a template). Add any descriptive text (do not add courses until Step 2). Descriptive text is generally used in the following cores: Plan Description, Plan Admission Requirements, Plan Requirements, Plan Certificate Completion Requirements.
2. There are two options for adding courses: "Add Course" and "Import Course." For courses already in the catalog, click on "Import Course" and find the courses needed. For new classes going through a Curriculum Approval Process click on "Add Course"-- a box will open asking you for the Prefix, Course Number and Course Title.
3. Click on  "View Curriculum Schema." Click on the area/header of the program where you would like to add courses. When you click on "Add Courses" it will bring up the list of courses available from Step 2. Select the courses you wish to add. For removing courses click on the  and proceed.

## **Plan Description**

Currently, there is a demand at the local, state, region and national level for individuals to be trained in the knowledge of computers, networks, and risk and security management. Students will be trained in technical and managerial aspects of cybersecurity. For more information about your program, including your graduate program handbook and learning outcomes, please visit the Degree Directory.

## **Plan Admission Requirements**

**Application deadlines** Applications available on the UNLV Graduate College website. **Undergraduate degree** in a technology program (i.e., CS, IS, Security, Engineering, etc.) **Overall undergraduate GPA** of 2.75, or 3.0 during the final 2 years of the program **Official transcript** of all university-level education **Two letters of recommendation** concerning the potential for success in the graduate program **Statement of purpose** explaining interest in the program **All domestic and international applicants** must review and follow the Graduate College **Admission and Registration Requirements**. Students are accepted into a degree program as described in the Graduate Catalog. The faculty and corresponding sub-disciplines and sub-plans within the described programs are subject to change at any time.

## **Plan Requirements**

**Total Credits Required: 12**

## **Course Requirements**

### **Core Course - Credits: 3**

**CSEC 702 Security Data Analytics**

**3**

### **Elective Courses – Credits: 9**

Complete 9 credits of advisor-approved courses in the CSEC program. Course options are suggested in, but not limited to, the list below:

<b>CSEC 700 Security Operations</b>	<b>3</b>
<b>CSEC 701 Secure Communication Protocols</b>	<b>3</b>
<b>CSEC 703 Cyber Physical Systems Security</b>	<b>3</b>
<b>CSEC 704 Human Factors in Cybersecurity</b>	<b>3</b>
<b>CSEC 705 Enterprise Security Administration</b>	<b>3</b>
<b>CSEC 721 Modern Cryptography</b>	<b>3</b>
<b>CSEC 722 Trusted Software Systems</b>	<b>3</b>
<b>CSEC 723 Cybercrime and Cyberterrorism</b>	<b>3</b>
<b>CSEC 724 IT Forensics and Incident Response</b>	<b>3</b>
<b>[After] CSEC 731 Cybersecurity in the Hospitality Industry</b>	
<b>CSEC 732 Cybersecurity in the Healthcare Industry</b>	
<b>CSEC 733 Cybersecurity in the Financial Industry</b>	
<b>CSEC 735 Information Warfare</b>	<b>3</b>
<b>[After] CSEC 750 Special Topics</b>	

## Degree Requirements

Overall GPA of 3.00 Complete all required courses with a grade of B or higher

## Plan Graduation Requirements

The student must submit all required forms to the Graduate College and then apply for graduation up to two semesters prior to completing their degree requirements.

The [Degrees Directory](#) provides current and consistent degree information. Submission of this form indicates acknowledgment and understanding that every department is responsible for creating and maintaining accurate and updated program information on the UNLV Degrees Directory.

**Degrees Directory  
Program Entry\***



Check this box to acknowledge the above statement.



**Sample program of study\***

Term 1

CSEC 70X

CSEC 70X

Term 2

CSEC 70X

CSEC 70X

3. LAUNCH proposal by clicking  in the top left corner.

4. Finish the launch of your proposal by clicking the icon  located in the Proposal Toolbox on left side at top. Make your decision, comment is optional, and click on "Make decision".

You can check the status of the proposal by clicking  in Proposal Toolbox to verify that the proposal has gone to the next step.

## IV. Department Vote Information

**Note:** This section is to be filled out by the Department Chair on behalf of the committee.

(The role has been assigned to the corresponding person on this step. If incorrect, please notify [GradCurriculum@unlv.edu](mailto:GradCurriculum@unlv.edu))

1. Review the proposal. Discuss and make appropriate revisions.

2. Fill in vote information.

3. Then go to the proposal toolbox at the top right side. Click on  and select the corresponding decision for the committee. This will enable the proposal to go to the next person on the workflow.

You can check the status of the proposal by clicking  in Proposal Toolbox to verify that the proposal has gone to the next step.

**Date faculty voted on proposal** Dec 2020


**Result of Vote** 7 in favor. 1 vote not received.

**Manner of vote** Email

## V. College Vote Information

Note: This section is to be filled out by the College Committee Chair on behalf of the committee.

(The role has been assigned to the corresponding person on this step. If incorrect, please notify GradCurriculum@unlv.edu)

1. Review the proposal. Discuss and make appropriate revisions.
2. Fill in vote information.
3. Then go to the proposal toolbox at the top right side. Click on  and select the corresponding decision for the committee. This will enable the proposal to go to the next person on the workflow.

You can check the status of the proposal by clicking  in Proposal Toolbox to verify that the proposal has gone to the next step.

**Date faculty voted on proposal** 1-26-2021

**Result of Vote** 2Y-0N-0Ab

**Manner of vote** Email

## VI. Processing Notes (Graduate College/Registrar Use Only)

**Program Alerts (E.g. \*\*View Program Disclaimer\*\*)**

**PS Processing Notes**

**PS Processing Date**

**Initials**

**Acalog Processing Notes**

**Acalog Processing Date**

**Initials**

## Comments for Graduate Certificate in Cybersecurity

<b>Curriculog</b>	2/4/2021 12:43 pm <a href="#">Reply</a>
Emily Lin has approved this proposal on Graduate Dean.	
<b>Gregory Moody</b>	2/3/2021 2:14 pm <a href="#">Reply</a>
Vote unanimous in favor: 15-0	
<b>Curriculog</b>	2/3/2021 2:14 pm <a href="#">Reply</a>
Gregory Moody has approved this proposal on Graduate Programs Committee.	
<b>Curriculog</b>	2/2/2021 3:52 pm <a href="#">Reply</a>
Graduate Curriculum has approved this proposal on Graduate Programs Committee.	
<b>Curriculog</b>	1/26/2021 5:45 pm <a href="#">Reply</a>
Emily Lin has approved this proposal on School/College Associate Dean / Dean.	
<b>Curriculog</b>	1/26/2021 5:44 pm <a href="#">Reply</a>
Emily Lin has approved this proposal on School/College Committee.	
<b>Curriculog</b>	1/26/2021 3:17 pm <a href="#">Reply</a>
Chin-Chun Hsu has approved this proposal on School/College Committee.	
<b>Curriculog</b>	1/25/2021 8:45 am <a href="#">Reply</a>
Mohamed Trabia has approved this proposal on School/College Committee.	
<b>Curriculog</b>	1/20/2021 9:38 am <a href="#">Reply</a>
Mohamed Trabia has approved this proposal on School/College Committee.	
<b>Curriculog</b>	1/14/2021 2:10 pm <a href="#">Reply</a>
Gregory Moody has approved this proposal on Department Chair.	
<b>Curriculog</b>	1/14/2021 2:09 pm <a href="#">Reply</a>
Gregory Moody has approved this proposal on Graduate Coordinator.	

**Curriculog**

12/14/2020 8:40 am [Reply](#)

Graduate Curriculum has approved this proposal on Technical Review.

**Curriculog**

12/14/2020 8:39 am [Reply](#)

Graduate Curriculum has force approved this proposal.

**EVP Academic Assessment**

12/8/2020 1:28 pm [Reply](#)

Please make sure you edit the learning outcomes in the proposal form to match the revised outcomes in the assessment plan.

The assessment plan is approved in its revised state.

**Curriculog**

12/8/2020 1:28 pm [Reply](#)

EVP Academic Assessment has approved this proposal on VPAP Step/ Graduate College Dean Review Step.

**Gregory Moody**

12/4/2020 1:54 pm [Reply](#)

Assessment plan updated to be smaller, and is noted that this is collected at the same time as the assessment for the MS Cyber program.

I did not see any other notes to address.

**Curriculog**

12/4/2020 1:54 pm [Reply](#)

Gregory Moody has approved this proposal on Originator.

**Curriculog**

12/4/2020 8:27 am [Reply](#)

Graduate Curriculum has force rejected this proposal.

**EVP VPAP**

12/2/2020 11:24 am [Reply](#)

Update the assessment plan. A student in a 12 credit certificate cannot achieve all of them as listed for the MS.

Lindsay suggests eliminating #3 as that cannot be achieved in such a short program.

**Curriculog**

12/2/2020 11:24 am [Reply](#)

EVP VPAP has rejected this proposal on VPAP Step/ Graduate College Dean Review Step.

**Curriculog**

11/27/2020 11:29 am [Reply](#)

Gregory Moody has approved this proposal on Originator.

## Graduate Curriculum

11/17/2020 3:52 pm [Reply](#)

- Please note proposal needs in comments below.

## Curriculog

11/17/2020 3:52 pm [Reply](#)

Graduate Curriculum has force rejected this proposal.

## Curriculog

11/17/2020 10:25 am [Reply](#)

Assessment VPAP was added to the VPAP (Vice Provost of Academic Programs) role.

## Gregory Moody

11/16/2020 12:21 pm [Reply](#)

Additional descriptions have been augmented and added as requested.

## Curriculog

11/16/2020 12:21 pm [Reply](#)

Gregory Moody has approved this proposal on Originator.

## Graduate Curriculum

10/26/2020 9:28 am [Reply](#)

Rejected on behalf of VPAP - Please see VPAP comments added below

## Curriculog

10/26/2020 9:28 am [Reply](#)

Graduate Curriculum has force rejected this proposal.

## Graduate Curriculum

10/26/2020 9:25 am [Reply](#)

Please review the items below for required additions/adjustments to the proposal:

- "Explanation of how the proposed certificate is related to existing undergraduate and/or graduate programs, and how this certificate will provide knowledge and skills not already available to current or potential UNLV students."

Change this text: "but want to try at a smaller level."

- "A statement describing the profile of potential certificate students and market demand for the certificate program, including, related occupations, job placement opportunities and market trend data when available."

A 12 credit certificate does not have the same students applying nor the same market demand, occupations, job placement opportunity as the full degree.

- Grad College & VPAP feel 5 is not a high enough number of students to create a certificate for.

- Faculty for the program.

- Verify student identity for online. There is a lack of consistency in the proposal. In one place it says that some courses may be online but other places it says all in-person instruction. Make them all consistent which sounds like it should be hybrid.

- Needs learning outcomes.

- Needs at least 1 required course for all students.

**Curriculog**

10/26/2020 9:25 am [Reply](#)

Graduate Curriculum has rejected this proposal on VPAP Step/ Graduate College Dean Review Step.

**Gregory Moody**

10/17/2020 8:34 pm [Reply](#)

Given that this is the creation of the first certificate program for the MS Cybersecurity program, I am uncertain if you require letters of approval from myself and respective deans. This is meant to be a feeder program for the larger MS program, and is built off of any four courses in the program. Thus, no new resources, etc. are needed, this will simply allow more flexibility and potential for more students into the overall program.

**Curriculog**

10/17/2020 8:34 pm [Reply](#)

Gregory Moody has approved this proposal on Originator.

**Curriculog**

10/17/2020 8:33 pm [Reply](#)

Gregory Moody has launched this proposal.

**Curriculog**

10/17/2020 8:18 pm [Reply](#)

Gregory Moody imported from the map 2021-2022 Working Graduate Catalog into the following proposal fields: I. General Catalog Information: Degree Type, I. General Catalog Information: Program Type, I. General Catalog Information: Certificate Name, III. Graduate Catalog Content and Degrees Directory: Prospective Curriculum.