PROPOSAL TO ESTABLISH A NEW UNDERGRADUATE CONCENTRATION

The completed and signed proposal should be submitted by the Dean's Office to: curriculumplanning@asu.edu.

Before academic units can advertise undergraduate concentrations or include them in their offerings as described in the university catalogs, they must be recommended for approval by the Senate Curriculum and Academic Programs Committee and approved by the Office of the University Provost.

Definition and minimum requirements:

A concentration is a formalized selection of courses within a major.

- A concentration requires a minimum of 15 credit hours of which at least nine credit hours must be upper division. Specialized concentrations (e.g., Bachelor of Science in Interdisciplinary Studies concentrations) may have additional or different requirements.
- A concentration is offered by a single unit and is intended exclusively for students pursuing a particular major. If a concentration consists of courses from more than one college, the approval of each college Dean is required.

College/School/Institute:	New College of Interdisciplinary Arts and Sciences
Department/Division/School:	School of Mathematical and Natural Sciences
Proposing Faculty Group (*if applicable*):	Applied Computing faculty
Are two or more academic units collaborating on this program?	No

If "Yes", list all the additional college(s)/school(s)/institute(s) that will be involved in the development and resources for the degree program by offering courses, faculty or facilities. Please note: This question does not refer to official joint degree programs. Official joint degree programs are ones in which the degree is jointly conferred by two colleges. If the program is jointly conferred, please complete the Proposal to Establish a New Joint Undergraduate Degree Program.

Existing Degree and Major under which this concentration will be established:	Applied Computing, BS
Proposed Concentration Name:	Cybersecurity
What is the first catalog year available for students to select on the undergraduate application for this this program?	2018-2019

Delivery method and campus or location options: *select all locations that apply*

☐ Downtown Phoenix ☐ Polytechnic ☐ Tempe ☐ Thunderbird ☒ West ☐ Other: _____

☐ **Both** on-campus **and** ☐ ASU Online***** - (check applicable campus(es) from options listed above)

☐ ASU Online only (all courses online and managed by ASU Online)

Note: Once students elect a campus or online option, students will not be able to move between the on-campus and the ASU Online options. Approval from the Office of the University Provost and Philip Regier (Executive Vice Provost and Dean) is required to offer programs through ASU Online. Please contact Ed Plus then complete the ASU Online Offering form in Curriculum ChangeMaker to begin this request.

Proposal Contact

Name:	Lara Ferry	**Title:**	School Director and Professor
Phone number:	(602) 543-2817	**Email:**	lara.ferry@asu.edu

DEAN APPROVAL(S)

This proposal has been approved by all necessary unit and College/School levels of review. I recommend implementation of the proposed organizational change.

College/School/Division Dean name: Todd Sandrin, Vice Provost and Dean, New College of Interdisciplinary Arts & Sciences

Signature: _____ **Date:** 02/08/2018

College/School/Division Dean name:
(if more than one college involved)

Signature: _____ **Date:** / /20

Note: An electronic signature, an email from the dean or dean's designee, or a PDF of the signed signature page is acceptable.

OVERVIEW

A. Provide a brief description of the new concentration (including the specific focus of the new concentration, relationship to other concentrations in this degree program, etc.).

The Cybersecurity concentration in the Applied Computing (ACO) BS degree builds competencies in security operations; risk assessment; network security; ethics; and governmental and regulatory compliance. This program will provide students with core computing skills as well as in-depth knowledge in the areas of cyber threats, security, and prevention in any setting. This is an ideal degree for students interested in careers in cybersecurity, such as Security Operations Center (SOC) Analyst, Information Security Engineer, Cyber Risk Analyst, Network Security Engineer, and ultimately Chief Information Security Officer (CISO), in both the private sector and within government agencies (Federal Bureau of Investigation, Homeland Security, National Security Agency, Department of Defense).

B. Explain the unit's need for the new concentration (e.g., market demand, research base, direction of the discipline, and interdisciplinary considerations). How will the new concentration complement the existing degree program?

Cybersecurity is a rapidly growing field with tremendous employment potential that is critical to economic vitality and national security due to a wide range of cyber threats and attacks exploiting devices, databases, systems, and networking vulnerabilities. The ACO degree, in general, is a flexible degree designed to allow for additional focus areas, such as communication or analytics, helping to prepare the complete professional for entry into the workplace. We capitalize on this flexibility, as well as the existing strengths of our faculty, in creating this concentration. We note that no new courses are needed to create this concentration; this is simply branding our existing strengths so that we might use it to grow enrollment on the West Campus. The Applied Computing Cybersecurity concentration will also leverage the Cybersecurity Education Consortium (CEC) in New College. The CEC is part of the Global Security Initiative, and, now in the beginning of its second year, has launched professional development courses, workshops, seminars and other events linking the CEC and ASU to the practicing cyber professional. The CEC has initiated a mock training SOC, and a Cyber Scholars program. The concentration will serve to grow the number of students interacting with, and through, the CEC and connecting with the cyber workforce.

1. Support and Impact

A. Attach a supporting letter from the chair of the academic unit verifying that the proposed concentration has received faculty approval through appropriate governance procedures in the unit and that the unit has the resources to support the concentration as presented in the proposal, without impacting core course resources.

B. Identify other <u>related</u> ASU programs and outline how the new concentration will complement these existing ASU programs. (If applicable, statements of support from potentially affected academic units need to be included with this proposal submission.)

There are connections to other ASU programs, such as WP Carey and Ira A Fulton Schools of Engineering (Tempe and Polytechnic campuses).

There is virtually no competitive overlap with the planned W. P. Carey BA in Business Administration (BABA) with a concentration in cybersecurity program. Our program is designed to attract very different students, largely those already in the Applied Computing (ACO) degree program. On the other hand, students interested in the business cyber program, with its business focus, will likely not be attracted to the New College program because of the computing-intensive first and second year. Indeed, while we partnered with Carey for their cyber concentration, the depth of technical knowledge in our Applied Computing program is the reason why we could not create the business concentration for them using only our ACO courses; the pre-requisites were too intense and created credit bloat. The resultant upcoming business "cyber" concentration is a blend of ACO and CIS courses (the latter of which will be imported to the West campus from Tempe to accommodate the desired growth on the West campus). The ACO courses that are used by business cyber students will also be used by ACO cyber students, creating excellent interdisciplinary opportunities. The remainder of the ACO courses are much more computer-intensive and thus would serve to attract a very different sort of student than would be drawn to the business degree. Thus, these two programs are extremely complementary and launching them at the same time will create infinitely more positive press for the West campus, assisting with the branding efforts of that campus and helping to ensure continued enrollment growth.

The students attracted to the Fulton Schools, and particular to the BS Computer Science (Information Assurance) concentrations in CIDSE, would likely not be lured away and into the proposed ACO "cyber" degree. Our degree will not offer the same training as the Fulton degree. We do not seek accreditation or other forms of national recognition. Our concentration, will, however, feed directly into the University-wide certificate that is mentioned above, if students desire this. Indeed, the concentration will require the pre-requisite courses for the certificate (which ACO students might not otherwise

take, as they are not required by the major map). The concentration will serve to ensure enrollment into the certificate, and into the Fulton courses included in that certificate, ultimately benefitting Fulton as well as ourselves.

C. Attach a supporting letter from each college/school dean from which individual courses, or the entire concentration, are taken.

2. Academic Curriculum and Requirements

A. Attach a PDF copy of the assessment plan printed from the University Office of Evaluation and Educational Effectiveness assessment portal demonstrating UOEEE's approval of your assessment plan for this program. Visit the assessment portal at https://uoeee.asu.edu/assessment-portal or contact uoeee@asu.edu with any questions.

B. Provide the curricular structure for this concentration. Be specific in listing required courses and specify the total minimum number of hours required for the concentration.

Required Core Courses for the Degree/Major				
Prefix	**Number**	***Title***	***Is this a new Course?***	**Credit Hours**
ACO	101	Introduction to Computer Science	No	3
ACO	102	Object-Oriented Programming	No	3
ACO	201	Data Structures and Algorithms	No	3
ACO	240	Introduction to Programming Languages	No	3
ACO	320	Database Systems	No	3
ACO	330	Computer Networks	No	3
ACO	350	Systems Programming	No	3
MAT	210	Brief Calculus	No	3
MAT	243	Discrete Mathematical Structures	No	3
STP	226	Elements of Statistics	No	3
			Section sub-total:	30
Required Concentration Courses				
Prefix	**Number**	***Title***	***Is this a new Course?***	**Credit Hours**
ACO	351 OR 402	Governance, Risk and Compliance OR Privacy, Ethics and Compliance Issues* If choosing ACO 402, student must take prerequisite ACO 401 Managing Cyber Risks in Enterprise Business Processes as Upper Division Cybersecurity Elective	No	3
ACO	361	Secure Coding Concepts	No	3
ACO	430	Wireless Networks	No	3
ACO	431	Network Security	No	3
ACO	461	Security Operations	No	3
COM	100	Introduction to Human Communication	No	3
PSY	101	Introduction to Psychology	No	3

			Section sub-total:	21
Elective Concentration Courses				
Prefix	**Number**	***Title***	***Is this a new Course?***	**Credit Hours**
		Upper Division Cybersecurity Elective (choose one course)		
ACO	401	Managing Cyber Risks in Enterprise Business Processes (Must take if planning to take ACO 402 for concentration requirement)	No	3
	OR	OR		
ACO	494	Special Topics (only security-related topics)		
	OR	OR		
FOR	350	Computer Forensics		
		Upper Division Communication Elective (choose one course)		
COM	312	Communication, Conflict, & Negotiation	No	3
	316	Gender & Communication		
	317	Nonverbal Communication		
	353	Professional Communication		
	415	Risk Communication		
	416	Gender & Race in the Media		
	459	Theory & Methods of Social Media Networks		
	471	Global Media & Cultural Identity		
	477	Sport, Culture & Discourses		
		Upper Division Ethics Elective (choose one course)		
IAS	340	Bioethics	No	3
IAS/PHI	406	Moral Dilemmas		
IAS/PHI	407	Environmental Philosophy and Policy		
IAS/PHI	409	Eco-Community Ethics		
PHI	306	Applied Ethics		
PHI	360	Business & Professional Ethics		
		Diversity Elective (choose one course)		
ASB	211	Women in Other Cultures	No	3
COM	263	Elements of Intercultural Communication		
ENG	317	Cross-Cultural Writing		
IAP	464	Media & Diversity		
POS/SBS	480	Global Justice		
PSY	385	Psychology of Gender		
SBS	301	Cultural Diversity		
WST	220	Gender, Media & Culture		
WST/REL	390	Women, Gender & Religion		
			Section sub-total:	15
<u>Other Concentration Requirements</u> ***E.g.*** **–** *Capstone experience, internship, clinical requirements, field studies, foreign language skills as applicable*				**Credit Hours**

Capstone: requires two separate semesters of ACO 484 Internship and/or ACO 499 Individualized Instruction	6
Section subtotal:	6
Total minimum credit hours required for concentration	72

C. A minimum residency requirement: How many hours of the concentration must be ASU credit?

15

D. Provide a brief course description for each new course.

Note: All new required courses should be submitted in Curriculum Changemaker and ready for Provost's Office approval before this concentration is put on the CAPC agenda.

N/A

3. Administration and Resources

A. How will the proposed concentration be administered (including admissions, student advisement, retention, etc.)?

The concentration will be managed in the same manner as the major itself, no special additions needed.

B. What are enrollment projections for the next three years?

	1st Year	**2nd Year** (Yr 1 continuing + new entering)	**3rd Year** (Yr 1 & 2 continuing + new entering)
Number of Students (Headcount)	10	20	35

C. What are the resource implications for the proposed concentration, including any projected budget needs? Will new books, library holdings, equipment, laboratory space and/or personnel be required now or in the future? If multiple units/programs will collaborate in offering this concentration, please discuss the resource contribution of each participating program. Letters of support must be included from all academic units that will commit resources to this concentration.

None - we already have these labs in place, as the faculty are already present and teaching/researching these subjects. We maintain learning labs for the Applied Computing students through class fees, and as enrollment grows, so will the fees collected, allowing us to keep pace in terms of the resources required/provided.

D. Please list the primary faculty participants regarding this proposed concentration. For interdisciplinary concentrations, please include the relevant names of faculty members from across the University.

Name	Title	Area(s) of Specialization as they relate to proposed concentration
Suzanne Dietrich	Professor, Program Lead	Databases and Computer Science Education
Yasin Silva	Associate Professor	Databases, Big Data and Social Network Analysis
Kuai Xu	Associate Professor	Networks and Security
Feng Wang	Associate Professor	Networks and Security
Kim Jones	Professor of Practice	Security, Risk, Governance, Compliance, Operations, Management

4. Additional Materials

A. Prepare and attach a Major Map. If this program will be delivered online as well as in-person, attach a copy of both the major map and the online major map. Please use the "proposed map" function to create a Major Map in BAMM. Instructions on how to create a "proposed major map" in BAMM can be found in the Build a Major Map Training Guide.

B. ***Complete and attach the Appendix document.***

C. Attach other information that will be useful to the review committees and the Office of the University Provost.

ARIZONA STATE UNIVERSITY

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APPENDIX
OPERATIONAL INFORMATION FOR UNDERGRADUATE CONCENTRATIONS

(This information is used to populate the Degree Search/catalog website.
Please consider the student audience in creating your text.)

Proposed Major and Concentration Name: Applied Computing (Cybersecurity)

1. **Marketing Description (***Optional.* 50 words maximum. The marketing description should not repeat content found in the program description.**)**
   The concentration in cybersecurity adds additional real-world skills to ASU's BS in applied computing. Students in the cybersecurity concentration become grounded in computer science and add risk assessment, analytics and information security to their skill sets. They hone critical-thinking and problem-solving skills by applying their cyber knowledge in industry and research settings.

2. **Program Description** (150 words maximum)
   The cybersecurity concentration is designed to prepare students for a continuing and progressive career in cybersecurity. Our innovative cybersecurity concentration builds upon the BS program in applied computing. Students acquire the technical knowledge to secure networks and applications; an understanding of cybersecurity governance models and risk-management fundamentals; methods of communicating complex risk issues; and solutions for the challenges of implementing cybersecurity controls within various organizational models. Leadership, critical thinking and effective communication also are emphasized.

   Students gain experience with real-world cybersecurity organizations, protecting digital assets against compromise or theft. Graduates of the applied computing program with a concentration in cybersecurity are well prepared for graduate study as well as entry-level employment with businesses, nonprofits, government agencies and academic institutions.

3. **Contact and Support Information**

Building code and room number: (Search ASU map)	FAB N100
Program office telephone number: (i.e. 480/965-2100)	602/543-3000
Program Email Address:	MNSadvising@asu.edu
Program Website Address:	https://newcollege.asu.edu/applied-computing-cybersecurity

4. **Additional Program Description Information**

A.	Additional program fee required for this program?	Yes ☐	No ☒
B.	Does this program have a second language requirement?	Yes ☐	No ☒

5. **Delivery/Campus Information Options**

   On-campus only (ground courses and/or iCourses)

   Note: Once students elect a campus or online option, students will not be able to move between the on-campus and the ASU Online options. Approval from the Office of the University Provost and Philip Regier (Executive Vice Provost and Dean) is required to offer programs through ASU Online. Please contact Ed Plus then complete the ASU Online Offering form in Curriculum ChangeMaker to begin this request.

6. **Campus/Locations** *indicate **all** locations where this program will be offered.*

   ☐ Downtown Phoenix ☐ Polytechnic ☐ Tempe ☐ Thunderbird ☒ West ☐ Other: _____

7. **Career Opportunities & Concentration(s)**
   Provide a brief description of career opportunities available for this degree program with the proposed concentration. (150 words maximum)

This is an ideal degree for students interested in careers in cybersecurity. Opportunities are available both in the private sector and within governmental agencies (e.g., the FBI, Homeland Security, the National Security Agency and the Department of Defense). Cybersecurity-focused positions include:

- chief information security officer
- cyber risk analyst
- information security engineer
- network security engineer
- security operations center analyst

8. Additional Freshman Admission Requirements

If applicable, list any freshman admission requirements that are higher than and/or in addition to the university minimum undergraduate admission requirements.

None

9. Additional Transfer Admission Requirements

If applicable, list any admission requirements for transfer students that are higher than and/or in addition to the university minimum undergraduate transfer admission requirements.

None

10. Change of Major Requirements

Standard change of major text is as follows: A current ASU student has no additional requirements for changing majors. Students should refer to https://students.asu.edu/changingmajors for information about how to change a major to this program.

If applicable, list any additional requirements for students who may change their major into this program.

None

11. Keywords

List all keywords used to search for this program (limit 10). Keywords should be specific to the proposed program.

Cybersecurity, Network Security, Networking, Internet, Information Technology, IT, Information Security, Information Assurance, Cyber Crime, Cyber Forensics

12. Advising Committee Code

List the existing advising committee code associated with this degree.

UGNCMS

Note: If a new advising committee needs to be created, please complete the following form:
Proposal to create an undergraduate advising committee

13. Western Undergraduate Exchange (WUE) Eligible

Has a request been submitted to the University Provost by the Dean to consider this degree program as eligible for WUE?

Yes

*Note: **No** action will be taken during the implementation process with regards to WUE until approval is received from the University Provost.*

14. First Required Math Course

List the first math course required in the major map.

MAT 210

15. Math Intensity

a. List the highest math required on the major map. (This will not appear on Degree Search.)

MAT 243

b. What is the math intensity as indicated by the highest math required on the major map? Math intensity categorization can be found here: https://catalog.asu.edu/mathintensity

Substantial

16. ONET Codes

Identify ONET/SOC codes that should be displayed on Degree Search. ONET/SOC codes can be found at: http://www.onetonline.org/crosswalk/SOC/. Alternate titles displayed on Degree Search may vary and can be found at: https://catalog.asu.edu/alternate-career-titles.

11-3021.00	15-1122.00 .....
15-1111.00	15-1142.00 .....
15-1121.00	25-1021.00 .....

17. Area(s) of Interest

A. Select **one** (1) primary area of interest from the list below that applies to this program.

☐ **Architecture & Construction**	☐ **Health & Wellness**
☐ **Arts**	☐ **Humanities**
☐ **Business**	☐ **Interdisciplinary Studies**
☐ **Communications & Media**	☐ **Law, Justice & Public Service**
☒ **Computing & Mathematics**	☐ **STEM**
☐ **Education & Teaching**	☐ **Science**
☐ **Engineering & Technology**	☐ **Social and Behavioral Sciences**
☐ **Entrepreneurship**	☐ **Sustainability**
☐ **Exploratory**	

B. Select **one (1)** secondary area of interest from the list below that applies to this program.

☐ **Architecture & Construction**	☐ **Health & Wellness**
☐ **Arts**	☐ **Humanities**
☐ **Business**	☐ **Interdisciplinary Studies**
☐ **Communications & Media**	☐ **Law, Justice & Public Service**
☐ **Computing & Mathematics**	☒ **STEM**
☐ **Education & Teaching**	☐ **Science**
☐ **Engineering & Technology**	☐ **Social and Behavioral Sciences**
☐ **Entrepreneurship**	☐ **Sustainability**
☐ **Exploratory**	

2018 - 2019 Major Map

Applied Computing (Cybersecurity), (Proposed)

School/College:
ARCPDUW

Term 1 0 - 16 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
ACO 101: Introduction to Computer Science (CS)	3	C	• An SAT, ACT, Accuplacer, IELTS, or TOEFL score determines placement into first-year composition courses. • Mathematics Placement Assessment score determines placement in mathematics course. Student may elect to take an MA course in place of elective if needed to prepare for MAT 210 in term 2. • ASU 101 or college-specific equivalent First-Year Seminar required of all freshman students. NEW 101 satisfies this requirement. • IAS 300 (3 credit hours) is required for all transfer students in place of NEW 101. • Select your career interest area and play me3@ASU.
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
NEW 101: The ASU New College Experience	1		
PSY 101: Introduction to Psychology (SB)	3	C	
Historical Awareness (H)	3		
Elective	3		
Term hours subtotal:	16		

Term 2 16 - 32 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
ACO 102: Object-Oriented Programming (CS)	3	C	• Explore interdisciplinary connections.
MAT 210: Brief Calculus (MA)	3	C	
COM 100: Introduction to Human Communication (SB)	3	C	
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
Natural Science - Quantitative (SQ)	4		
Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Term hours subtotal:	16		

Term 3 32 - 48 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
ACO 201: Data Structures and Algorithms (CS)	3	C	• Develop your research skills.
MAT 243: Discrete Mathematical Structures	3	C	
Global Awareness (G)	3		
Humanities, Arts and Design (HU)	3		
Natural Science - Quantitative (SQ) OR Natural Science - General (SG)	4		
Complete First-Year Composition requirement.			
Complete Mathematics (MA) requirement.			
Term hours subtotal:	16		

Term 4 48 - 63 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
ACO 240: Introduction to Programming Languages	3	C	

STP 226: Elements of Statistics (CS)	3	C
Humanities, Arts and Design (HU)	3	
Literacy and Critical Inquiry (L)	3	
Elective	3	
Term hours subtotal:	15	

- Develop your professional online presence.

Term 5 63 - 78 Credit Hours Necessary course signified by	Hours	Minimum Grade
ACO 320: Database Systems and Transaction Processing	3	C
ACO 330: Computer Networks	3	C
Cultural Diversity in the U.S. (C)	3	
Upper Division Literacy and Critical Inquiry (L) OR IAS 300: Adult Career Development (L or SB)	3	
Elective	3	
Term hours subtotal:	15	

Notes

- IAS 300 (3 credit hours) is required for all transfer students.
- Start exploring an internship, study abroad, or IGLE experience.

Term 6 78 - 93 Credit Hours Necessary course signified by	Hours	Minimum Grade
ACO 350: Systems Programming (CS)	3	C
ACO 361: Secure Coding Concepts	3	C
ACO 430: Wireless Networks	3	C
Diversity Elective	3	C
Elective	3	
Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).		
Complete ACO 320 AND ACO 330 course(s).		
Term hours subtotal:	15	

Notes

- Use Handshake to research employment opportunities.

Term 7 93 - 105 Credit Hours Necessary course signified by	Hours	Minimum Grade
ACO 484: Internship OR ACO 499: Individualized Instruction	3	C
Upper Division Cybersecurity Elective	3	C
ACO 431: Network Security	3	C
ACO 461: Security Operations	3	C
Term hours subtotal:	12	

Notes

- Completion of ACO 320 and ACO 330 with a C or better is required to enroll in ACO 484 and ACO 499. ACO 484 and ACO 499 may not be taken concurrently, and is limited to a maximum of 3 hours per semester (six hours total in the major). Subject of study requires faculty approval.
- If planning to take ACO 402 in Term 8, ACO 401 must be taken to fulfill Upper Division Cybersecurity Elective in Term 7 (ACO 401 is a prerequisite to ACO 402).
- If ACO 494 is taken to meet the Cybersecurity Elective requirement, it must be a security-related topic.

Term 8 105 - 120 Credit Hours Necessary course signified by	Hours	Minimum Grade
ACO 484: Internship OR ACO 499: Individualized Instruction	3	C
ACO 351: Governance, Risk and Compliance OR ACO 402: Privacy, Ethics and Compliance Issues	3	C
Upper Division Communication Elective	3	C
Upper Division Ethics Elective	3	C

Notes

- Completion of ACO 320 and ACO 330 with a C or better is required to enroll in ACO 484 and ACO 499. ACO 484 and ACO 499 may not be taken concurrently, and is limited to a maximum of 3 hours per semester (six hours

Upper Division Elective	3
Term hours subtotal:	15

total in the major). Subject of study requires faculty approval.

Hide Course List(s)/Track Group(s)

Upper Division Communication Elective
COM 312: Communication, Conflict, and Negotiation
COM 316: Gender and Communication (SB & C)
COM 317: Nonverbal Communication
COM 353: Professional Communication
COM 415: Risk Communication
COM 416: Gender and Race in the Media
COM 459: Theory and Methods of Social Media Networks
COM 471: Global Media and Cultural Identity (G)
COM 477: Sport, Culture, and Discourses

Upper Division Cybersecurity Elective
ACO 401: Managing Cyber Risks in Enterprise Business Processes
ACO 494: Special Topics
FOR 350: Computer Forensics

Diversity Elective
ASB 211: Women in Other Cultures ((HU or SB) & G)
COM 263: Elements of Intercultural Communication (SB & C & G)
ENG 317: Cross-Cultural Writing ((L or HU) & G)
IAP 464: Media and Diversity (HU & G)
POS 480: Global Justice (G) or SBS 480: Global Justice (G)
PSY 385: Psychology of Gender (SB)
SBS 301: Cultural Diversity ((L or SB) & C)
WST 220: Gender, Media and Culture ((HU or SB) & C)
WST 390: Women, Gender and Religion (HU & G) or REL 390: Women, Gender and Religion (HU & G)

Upper Division Ethics Elective
IAS 340: Bioethics (HU)
IAS 406: Moral Dilemmas (L or HU) or PHI 406: Moral Dilemmas (L or HU)
IAS 407: Environmental Philosophy and Policy (L or HU) or PHI 407: Environmental Philosophy and Policy (L or HU)
IAS 409: Eco-Community Ethics (HU) or PHI 409: Eco-Community Ethics (HU)
PHI 306: Applied Ethics (HU)
PHI 360: Business and Professional Ethics (HU)

Total Hours: 120
Upper Division Hours: 45 minimum
Major GPA: 2.00 minimum
Cumulative GPA: 2.00 minimum
Total hrs at ASU: 30 minimum
Hrs Resident Credit for Academic Recognition: 56 minimum
Total Community College Hrs: 64 maximum

General University Requirements Legend

General Studies Core Requirements:

- Literacy and Critical Inquiry (L)
- Mathematical Studies (MA)
- Computer/Statistics/Quantitative Applications (CS)
- Humanities, Arts and Design (HU)
- Social-Behavioral Sciences (SB)

Total College Residency Hrs: 12 minimum

- Natural Science - Quantitative (SQ)
- Natural Science - General (SG)

General Studies Awareness Requirements:

- Cultural Diversity in the U.S. (C)
- Global Awareness (G)
- Historical Awareness (H)

First-Year Composition

General Studies designations listed on the major map are current for the 2018 - 2019 academic year.

ARIZONA STATE UNIVERSITY

Academic Program Assessment Plan

Date:	2/7/2018	**Program Name:**	BS in Applied Computing (Cybersecurity)	**Status:**	UOEEE Provisional Approval

Comment

Assessment Plan	
Outcome 1:	Students will apply the principles of data analysis in and outside networked environments as they pertain to identifying the risk of cyber-attacks and detecting actual attacks
Measure 1.1	Students will be able to identify the potential for breach and points of vulnerability in the Cyber Data Analysis project in ACO 461 satisfactorily (C or better) according to faculty-designed rubrics
Performance Criterion 1.1	100% of students will receive a C or better in the cyber data analysis project in ACO 461
Measure 1.2	Students will rapidly detect and stop various security attacks via multiple vectors within a networked environment, simulated in a timed lab practical in ACO 461. Time to completion will be equated to a grade via a faculty-designed scale, determined based upon the challenges presented.
Performance Criterion 1.2	100% students will receive a C or better in the timed lab practical portion of ACO 461.
Measure 1.3	
Performance Criterion 1.3	
Outcome 2:	Students will be able to program securely such that they can protect against security threats and software vulnerabilities
Measure 2.1	Students will be able to write code that will execute on the final exam in ACO 361. Executable code will be equated to letter grades using a faculty-rubric that quantifies compiling errors and other code faults leading to non-executable programming.
Performance Criterion 2.1	100% of students will receive a C or better in the final exam of ACO 361
Measure 2.2	Students will be able to identify the most frequent programming errors leading to software vulnerabilities. Debugging success will be evaluated in the Program Debuggng project in ACO 361, determined by faculty rubrics that account for the difficulty of error detection.
Performance Criterion 2.2	100% of students will receive a C or better in the Program Debuggng project in ACO 361
Measure 2.3	Students will be able to protect against security threats and software vulnerabilities on the Secure Programming project in ACO 361, as judged by a faculty rubric that scores the code's strength against security threats and equates this score to a letter grade.
Performance Criterion 2.3	100% of students will receive a C or better in the secure programming project of ACO 361
Outcome 3:	Students will be able to critically evaluate compliance issues with government regulations and ethics, and articulate best compliance strategies and practices through written and verbal communication.
Measure 3.1	Students will identify, and articulate, appropriate governance strategies around key security areas within an organization, as measured by the Strategies Presentation (presented to a mock organization) in ACO 351. Performance on the presentation will be scored using faculty-designed rubrics that articulate the requirements for 'exceeds expectations', 'meets expectations', and 'needs work.'
Performance Criterion 3.1	100% of students will meet or exceed expectations on the Strategies Presentation in ACO 351.
Measure 3.2	Students will critique, and articulate, the ethics-issues surrounding data privacy, breaches of privacy, and governmental and organizational obligations versus 'best practices,' through a written assignment in ACO 351. Performance on the assignment will be scored using faculty-designed rubrics that articulate the requirements for 'exceeds expectations', 'meets expectations', and 'needs work.'
Performance Criterion 3.2	100% of students will receive a C or better in this written project in ACO 351.
Measure 3.3	
Performance Criterion 3.3	

Outcome 4:

Measure 4.1

Performance Criterion 4.1

Measure 4.2

Performance Criterion 4.2

Measure 4.3

Performance Criterion 4.3

Outcome 5:

Measure 5.1

Performance Criterion 5.1

Measure 5.2

Performance Criterion 5.2

Measure 5.3

Performance Criterion 5.3

ASU New College of Interdisciplinary Arts and Sciences
Arizona State University

February 8, 2018

To: Todd Sandrin, Dean and Professor
New College of Interdisciplinary Arts and Sciences

From: Lara Ferry, Director and Professor
School of Mathematics and Natural Sciences

Subject: Proposal to Establish Concentration – BS Applied Computing (Cybersecurity)

Attached please find the Proposal to Establish Concentration – BS Applied Computing (Cybersecurity). This proposal was prepared by faculty members from the School of Mathematics and Natural Sciences.

This proposal, approved for planning in December 2017, was approved by the New College Undergraduate Curriculum Committee. Please approve this proposal and forward it for further approvals. We are requesting an expedited review for this timely concentration.

New College of Interdisciplinary Arts and Sciences
Mailing Address: PO Box 37100, Phoenix, AZ 85069-7100
Street/Shipping Address: 4701 W. Thunderbird Road, Glendale, AZ 85306-4908
(602) 543-7000 Fax: (602) 543-4565
newcollege@asu.edu
http://newcollege.asu.edu

Stacey Kimbell

From: Patricia Clark
Sent: Friday, February 02, 2018 2:50 PM
To: Kimberly Kobojek
Cc: Ramsey Eric Ramsey; Stacey Kimbell
Subject: Re: Cybersecurity concentration comments

I also approve of this proposal. And thank you Kimberly for your comments. I fully agree.

Sent by Patricia Clark

On Feb 2, 2018, at 11:04 AM, Kimberly Kobojek <Kimberly.Kobojek@asu.edu> wrote:

> I fully support this proposed concentration for many different reasons, and I feel that we would be missing out if this program were not approved and implemented.
>
> There is a documented need for qualified cybersecurity personnel all over the country. Just here in AZ there is a strong business collaboration and support of "all things cyber." The related programs offered by Fulton and WP Carey simply don't provide our customers (students and community and business members) with the "product" they desire e.g. learned individuals who can grasp and apply aspects of computer science and computer engineering to a specific job area.
>
> This is not to say that we would saturate a market with graduates with no hope of getting a job. On the contrary, we would be providing a service to the community that a school down the road already does and we would do so with the support of the Cybersecurity Education Consortium, and most likely, a local alum and cybersecurity business owner who is a "friend" of ASU West and supporter/donor to the campus.
>
> I think this concentration will be a smart and innovative addition to New College.
>
> I am very familiar with the goings-on related to the formation of this concentration. Please don't hesitate to reach out to me or to Kim Jones if there is any additional information required.
>
> Thank you.
>
> Kimberly Kobojek, M.S., D-ABC
> Program Director, Forensic Science | Clinical Associate Professor, Forensic Science
> Honors Faculty
> New College of Interdisciplinary Arts and Sciences
> Arizona State University at the West Campus
> School of Mathematical and Natural Sciences, Mail Code 2352
> Office: 602.543.3913
> CLCC 114
>
> <image003.jpg>

Stacey Kimbell

From: Patricia Friedrich
Sent: Tuesday, February 06, 2018 7:37 PM
To: Kyle Squires
Cc: Stacey Kimbell
Subject: Re: Impact Statements Required for Applied Computing (Cybersecurity) Proposal to Establish

Dear Kyle,

Thank you so much. We appreciate your help!

Patty

Patricia Friedrich, PhD
Associate Dean for Academic Programs,
New College of Interdisciplinary Arts and Sciences
Professor of Linguistics/Rhetoric and Composition,
School of Humanities, Arts, and Cultural Studies
Arizona State University P. O. Box 37100
4701 W. Thunderbird Rd. Mail Code 3051
Phoenix, AZ, USA 85069-7100
voice 602 543-6046

From: Kyle Squires <squires@asu.edu>
Date: Tuesday, February 6, 2018 at 7:24 PM
To: Patricia Friedrich <Patricia.Friedrich@asu.edu>
Subject: RE: Impact Statements Required for Applied Computing (Cybersecurity) Proposal to Establish

Dear Patty,

FSE anticipates minimal (if any) impact on our related degrees and concentrations, that are offered in our CIDSE school.

Thanks,

-- Kyle

From: Patricia Friedrich
Sent: Monday, February 5, 2018 10:36 AM
To: Michele Pfund <Michele.Pfund@asu.edu>; Kyle Squires <squires@asu.edu>
Subject: Impact Statements Required for Applied Computing (Cybersecurity) Proposal to Establish

Dear Michele, dear Kyle:

I am writing to request impact statements regarding the establishment of the ACO (Cyber) concentration attached above. This is a concentration for which we already had permission to plan.
Please note that we are asking for an expedited review to implement this in Fall 2018, so if we could have these statements as soon as possible that would be great.

Thank you so much,

Patty

Patricia Friedrich, PhD
Associate Dean for Academic Programs,
New College of Interdisciplinary Arts and Sciences
Professor of Linguistics/Rhetoric and Composition,
School of Humanities, Arts, and Cultural Studies
Arizona State University P. O. Box 37100
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voice 602 543-6046

Stacey Kimbell

From: Patricia Friedrich
Sent: Thursday, February 08, 2018 8:53 AM
To: Kay Faris
Cc: Michele Pfund; Stacey Kimbell
Subject: Re: Impact Statements Required for Applied Computing (Cybersecurity) Proposal to Establish

Wonderful! Thank you so much, Kay.

Best, Patty

Patricia Friedrich, PhD
Associate Dean for Academic Programs,
New College of Interdisciplinary Arts and Sciences
Professor of Linguistics/Rhetoric and Composition,
School of Humanities, Arts, and Cultural Studies
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voice 602 543-6046

From: Kay Faris <KAY.FARIS@asu.edu>
Date: Thursday, February 8, 2018 at 6:54 AM
To: Patricia Friedrich <Patricia.Friedrich@asu.edu>
Cc: Kay Faris <KAY.FARIS@asu.edu>, Michele Pfund <Michele.Pfund@asu.edu>
Subject: FW: Impact Statements Required for Applied Computing (Cybersecurity) Proposal to Establish

Good Morning, Patricia,

I have consulted with our faculty and have no concerns with the Applied Computing (Cybersecurity) going forward. This program will have no negative impact on the W. P. Carey Bachelor of Arts programs.

Best wishes,

Kay

Kay A. Faris
Senior Associate Dean, Academic Programs
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Tempe, AZ 85287-3406
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