BS in Cybersecurity (396527) MAP Sheet
Engineering, School of Technology
For students entering the degree program during the 2020-2021 curricular year.

Cybersecurity is a computing-based discipline involving technology, people, information, and processes to protect computing systems from adversaries. It involves the creation, operation, analysis, and testing of secure computing systems. Cybersecurity professionals know how to secure websites, mobile apps, operating systems, databases, networks, and embedded computing systems. They stay current on the latest computer vulnerabilities, help prevent employees from falling victim to social engineering attacks, collaborate with leadership to mitigate and manage risks, monitor systems to identify intruders, and respond effectively when successful attacks occur. Penetration testers, also known as Red Team members, are hired by companies and organizations to identify vulnerabilities by ethically hacking into systems. Digital forensics investigators use sophisticated tools to track down attackers and capture evidence that can be used in court. Because of the

### University Core and Graduation Requirements

#### University Core Requirements:

<table>
<thead>
<tr>
<th>Requirements</th>
<th>#Classes</th>
<th>Hours</th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religion Cornerstones</td>
<td>1</td>
<td>2.0</td>
<td>REL A 275</td>
</tr>
<tr>
<td>Teachings and Doctrine of The Book of Mormon</td>
<td>1</td>
<td>2.0</td>
<td>REL A 250</td>
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<tr>
<td>Foundations of the Restoration</td>
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<td>REL C 225</td>
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<tr>
<td>The Eternal Family</td>
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<td>REL C 200</td>
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<td>The Individual and Society</td>
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<tr>
<td>American Heritage</td>
<td>1-2</td>
<td>3-6.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Global and Cultural Awareness</td>
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<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Skills</td>
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<tr>
<td>First Year Writing</td>
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<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Advanced Written and Oral Communications</td>
<td>1</td>
<td>3.0</td>
<td>WRTG 316*</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>1</td>
<td>4.0</td>
<td>MATH 112* or ACT</td>
</tr>
<tr>
<td>Languages of Learning (Math or Language)</td>
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<td>4.0</td>
<td>MATH 112*</td>
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<tr>
<td>Arts, Letters, and Sciences</td>
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<tr>
<td>Civilization 1</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Civilization 2</td>
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<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Arts</td>
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<td>3.0</td>
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<tr>
<td>Letters</td>
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<tr>
<td>Biological Science</td>
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<tr>
<td>Physical Science</td>
<td>1</td>
<td>3.0</td>
<td>IT 327*</td>
</tr>
<tr>
<td>Social Science</td>
<td>1</td>
<td>3.0</td>
<td>ECON 110* or PSYCH 111*</td>
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<tr>
<td>Core Enrichment: Electives</td>
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<td>6.0</td>
<td>from approved list</td>
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<tr>
<td>Religion Electives</td>
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<td>Variable</td>
<td>personal choice</td>
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<tr>
<td>Open Electives</td>
<td>Variable</td>
<td>Variable</td>
<td>personal choice</td>
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</tbody>
</table>

*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS

### Freshman Year

#### 1st Semester
- First-year Writing or American Heritage: 3.0
- IT&C 101: 3.0
- CS 142: 3.0
- MATH 112: 4.0
- Religion Cornerstone course: 2.0
- Total Hours: 15.0

#### 2nd Semester
- First-year Writing or American Heritage: 3.0
- PHYS 121: 3.0
- CS 235: 3.0
- IT&C 124: 3.0
- TECH 112: 1.0
- Religion Cornerstone course: 2.0
- Total Hours: 15.0

#### Sophomore Year

#### 3rd Semester
- IT&C 210A: 2.0
- IT&C 210B: 2.0
- STAT 201: 3.0
- Global & Cultural Awareness: 3.0
- Religion Cornerstone course: 2.0
- Total Hours: 15.5

#### 4th Semester
- IT&C 255: 3.0
- IT&C 231: 3.0
- Minor/ General Elective: 1.0
- Religion Elective: 2.0
- Total Hours: 15.0

### Junior Year

#### 5th Semester
- IT&C 327: 4.0
- IT&C 344: 3.0
- IT&C 347: 3.0
- IT&C 291R: 0.5
- CIM 336: 3.0
- Religion elective: 2.0
- Total Hours: 15.5

#### 6th Semester
- IT&C 350: 3.0
- IT&C 366: 3.0
- ECON 110 or PSYCH 111: 3.0
- Civilization I: 3.0
- Religion Elective: 2.0
- Total Hours: 14.0

### Senior Year

#### 7th Semester
- IT&C 446: 3.0
- IT&C 447: 3.0
- Cybersecurity Technical Elective: 3.0
- IT&C 231: 3.0
- Minor/ General Elective: 1.0
- Religion Elective: 2.0
- Total Hours: 15.0

#### 8th Semester
- IT&C 447: 3.0
- Arts or Letters: 3.0
- Civilization II and Arts or Letters: 3.0
- General Elective: 3.0
- Total Hours: 15.0

IT&C 447 includes the requirement of 200 hours of approved cybersecurity work experience.
Students must have a minimum of 120 total hours to graduate with this major.

REQUIREMENT 1
Complete 7 courses
- C S 142 - Introduction to Computer Programming 3.0
- C S 235 - Data Structures and Algorithms 3.0
- C S 236 - Discrete Structures 3.0
- *MATH 112 - Calculus 1 4.0
- PSYCH 211 - Introduction to Psychology 3.0
- SOCIAL 310 - Introduction to Sociology 3.0
- WRTG 316 - Technical Writing 3.0

REQUIREMENT 2
Complete 1 course
IT&C 210B - Fundamentals of Web-Based Information Technology 3.0

REQUIREMENT 3
Complete 1 course
ECON 110 - Economic Principles and Problems 3.0

REQUIREMENT 4
Complete 1 course
PSYCH 111 - Introduction to Psychological Science 3.0

NOTE: IT&C 210A and 210B MUST BE COMPLETED WITH A GRADE OF C OR HIGHER PRIOR TO ENTERING ANY 300-LEVEL IT COURSE.

IT&C 101 - Cornerstone: Information Technology & Cybersecurity 3.0
IT&C 124 - Introduction to Computer Systems 3.0
IT&C 210A - Fundamentals of Web-Based Information Technology 2.0
IT&C 210B - Fundamentals of Web-Based Information Technology 2.0
IT&C 252 - Computer Architecture and Organization 3.0
IT&C 293 - Professional Seminar 0.5
IT&C 327 - Digital Communications 4.0
IT&C 344 - Operating Systems 3.0
IT&C 347 - Computer Networks 3.0
IT&C 350 - Database Principles and Applications 3.0
IT&C 366 - Information Assurance and Security 3.0
IT&C 446 - Senior Project/ Capstone 1 3.0
IT&C 447 - Senior Project/Capstone 2 3.0
IT&C 566 - Digital Forensics 3.0
IT&C 567 - Cybersecurity and Penetration Testing 3.0

REQUIREMENT 5
Take the following 3 times:
- IT&C 291R - Seminar 0.5
You may take up to 1 credit hour.

REQUIREMENT 6
Complete 6.0 hours from the following course(s)
- IT&C 492R - Special Problems in Information Technology & Cybersecurity 3.0
- IT&C 515R - Special Topics in Information Technology & Cybersecurity 3.0v
- IT&C 529 - Advanced Networking 3.0
- IT&C 544 - System Administration 3.0
- IT&C 548 - Cyber-Physical Systems 3.0
- MATH 485 - Mathematical Cryptography 3.0

REQUIREMENT 7
Students must complete 200 hours of pre-approved cybersecurity-related work after declaring the major and must submit a signed letter from an employer during the IT&C 447 course.

REQUIREMENT 8
Complete department packet and exit interview.

THE DISCIPLINE:

Cybersecurity is a computing-based discipline involving technology, people, information, and processes to protect computing systems from adversaries. It involves the creation, operation, analysis, and testing of secure computing systems. Cybersecurity professionals know how to secure websites, mobile apps, operating systems, databases, networks, and embedded computing systems. They stay current on the latest computer vulnerabilities, help prevent employees from falling victim to social engineering attacks, collaborate with leadership to mitigate and manage risks, monitor systems to identify intruders, and respond effectively when successful attacks occur. Penetration testers, also known as Red Team members, are hired by companies and organizations to identify vulnerabilities by ethically hacking into systems. Digital forensics investigators use sophisticated tools to track down attackers and capture evidence that can be used in court.

Because of the influence and leadership roles we expect graduates to have, our students will be encouraged to develop high moral and ethical standards as well as being conversant with and compliant with professional and legal standards.

CAREER OPPORTUNITIES:

The field has grown tremendously in recent years and is expected to continue rapid growth in the coming decades. BYU’s Cybersecurity program is recognized as a National Center of Academic Excellence in Cyber Defense by the NSA/DHS and has placed students in the public and private sector at top companies both small and large. Graduates fill roles as penetration testers, forensics computer analysts, network and systems administrators, data security engineers, information security analysts, security architects, IT security engineers, and Chief Information Security Officers.

MAP DISCLAIMER

While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

DEPARTMENT INFORMATION

Information Technology & Cybersecurity
School of Technology
265 Crabtree Building
Brigham Young University, Provo, UT 84602
Telephone: 801-422-6300

ADVISEMENT CENTER INFORMATION

Samuel Cardenas Academic Advisor, School of Technology
230 Snell Building
Brigham Young University, Provo, UT 84602
Telephone: 801-422-2021
sot_advisement@byu.edu