

# CYBERSECURITY (BS)

## Program Overview

All graduates in the B.S. in Cybersecurity program offered by the Turner College of Business will learn the essential skills necessary to join the cybersecurity workforce.

## Career Opportunities

Typical current cybersecurity positions include:

- Cybersecurity Manager
- Cybersecurity Management Consultant
- Cyber Security Analyst- Awareness and Education
- Cybersecurity Regulatory Governance Lead
- Cyber Security Measures and Reporting Lead
- IT Cyber Security Controls Assessor
- Information Security Governance Specialist
- Cybersecurity Regulatory Compliance Instructor
- Cybersecurity Policy and Compliance Analyst

## Program of Study

| Code                                                                                                                 | Title                                 | Credit Hours |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------------|
| <b>Core IMPACTS Area : Institutional Priorities <sup>1</sup></b>                                                     |                                       | <b>4-5</b>   |
| Choose one of the following communication options                                                                    |                                       | 3            |
| COMM 1110                                                                                                            | Public Speaking                       |              |
| Foreign Language Course Options                                                                                      |                                       |              |
| AMSL, ARAB, CHIN, FREN, GERM, GREK, ITAL, JAPN, KREN, LATIN, PORT, SPAN - 1001, 1002, 2001, 2002; SWAH - 1001, 1002. |                                       |              |
| Take one of the following courses                                                                                    |                                       | 1-2          |
| ITDS 1779                                                                                                            | Scholarship Across the Disciplines    |              |
| LEAD 1705                                                                                                            | Introduction to Servant Leadership    |              |
| PERS 1506                                                                                                            | Perspectives 1-hour                   |              |
| PERS 1507                                                                                                            | Perspectives 2-hour                   |              |
| <b>Core IMPACTS Area : Mathematics &amp; Quantitative Skills <sup>1</sup></b>                                        |                                       | <b>3-7</b>   |
| DATA 1501                                                                                                            | Introduction to Data Science          | 3            |
| MATH 1001                                                                                                            | Quantitative Skills and Reasoning     | 3            |
| MATH 1101                                                                                                            | Introduction to Mathematical Modeling | 3            |
| MATH 1111                                                                                                            | College Algebra                       | 3            |
| MATH 1113                                                                                                            | Pre-Calculus                          | 4            |
| MATH 1125                                                                                                            | Applied Calculus                      | 3            |
| MATH 1131                                                                                                            | Calculus with Analytic Geometry I     | 4            |
| MATH 1132                                                                                                            | Calculus with Analytic Geometry II    | 4            |
| MATH 1165                                                                                                            | Computer-Assisted Problem Solving     | 3            |
| MATH 1401                                                                                                            | Introduction to Statistics            | 3            |
| MATH 1501                                                                                                            | Calculus I                            | 4            |
| MATH 2125                                                                                                            | Introduction to Discrete Mathematics  | 3            |
| STAT 1401                                                                                                            | Elementary Statistics                 | 3            |
| <b>Core IMPACTS Area : Political Science and U.S. History</b>                                                        |                                       | <b>6</b>     |
| HIST 2111                                                                                                            | U. S. History to 1865                 | 3            |
| or HIST 2112                                                                                                         | U. S. History since 1865              |              |
| POLS 1101                                                                                                            | American Government                   | 3            |
| <b>Core IMPACTS Area : Arts, Humanities, and Ethics</b>                                                              |                                       | <b>6</b>     |

|                                                                                 |                                                                   |             |
|---------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------|
| Select one Fine Arts course                                                     |                                                                   | 3           |
| ARTH 1100                                                                       | Art Appreciation                                                  |             |
| ARTH 2125                                                                       | Introduction to the History of Art I– Prehistoric through Gothic  |             |
| ARTH 2126                                                                       | Introduction to the History of Art II– Renaissance through Modern |             |
| MUSC 1100                                                                       | Music Appreciation                                                |             |
| THEA 1100                                                                       | Theatre Appreciation                                              |             |
| ITDS 1145                                                                       | Comparative Arts <sup>2</sup>                                     |             |
| Select one Humanities course                                                    |                                                                   | 3           |
| ENGL 2111                                                                       | World Literature I                                                |             |
| ENGL 2112                                                                       | World Literature II                                               |             |
| ITDS 1155                                                                       | The Western Intellectual Tradition                                |             |
| ITDS 1774                                                                       | Introduction to Digital Humanities                                |             |
| PHIL 2010                                                                       | Introduction to Philosophy                                        |             |
| ITDS 1145                                                                       | Comparative Arts <sup>2</sup>                                     |             |
| <b>Core IMPACTS Area : Communicating in Writing</b>                             |                                                                   | <b>6</b>    |
| ENGL 1101                                                                       | English Composition I                                             | 3           |
| ENGL 1102                                                                       | English Composition II                                            | 3           |
| <b>Core IMPACTS Area : Technology, Mathematics, and Sciences <sup>1,3</sup></b> |                                                                   | <b>7-11</b> |
| ANTH 1145                                                                       | Human Origins                                                     | 3           |
| ASTR 1105                                                                       | Descriptive Astronomy: The Solar System                           | 3           |
| ASTR 1106                                                                       | Descriptive Astronomy: Stars and Galaxies                         | 3           |
| ASTR 1305                                                                       | Descriptive Astronomy Lab                                         | 1           |
| ATSC 1112                                                                       | Understanding the Weather                                         | 3           |
| ATSC 1112L                                                                      | Understanding the Weather Lab                                     | 1           |
| BIOL 1125                                                                       | Contemporary Issues in Biology Non-Lab                            | 3           |
| BIOL 1215K                                                                      | Introductory Biology                                              | 4           |
| BIOL 1225K                                                                      | Contemporary Issues in Biology with Lab                           | 4           |
| CHEM 1151 & 1151L                                                               | Survey of Chemistry I and Survey of Chemistry I Lab               | 4           |
| CHEM 1152 & 1152L                                                               | Survey of Chemistry II and Survey of Chemistry II Lab             | 4           |
| CHEM 1211 & 1211L                                                               | Principles of Chemistry I and Principles of Chemistry I Lab       | 4           |
| CHEM 1212 & 1212L                                                               | Principles of Chemistry II and Principles of Chemistry II Lab     | 4           |
| CPSC 1105                                                                       | Introduction to Computing Principles and Technology               | 3           |
| CPSC 1301K                                                                      | Computer Science I                                                | 4           |
| ENVS 1105                                                                       | Environmental Studies                                             | 3           |
| ENVS 1105L                                                                      | Environmental Studies Laboratory                                  | 1           |
| ENVS 1205K                                                                      | Sustainability and the Environment                                | 4           |
| GEOG 2215                                                                       | Introduction to the Geographic Information Systems                | 3           |
| GEOL 1110                                                                       | Natural Disasters: Our Hazardous Environment                      | 3           |
| GEOL 1121                                                                       | Introductory Geoscience I: Physical Geology                       | 3           |
| GEOL 1121L                                                                      | Introductory Geoscience I: Physical Geology Lab                   | 1           |
| GEOL 1122                                                                       | Introductory Geo-sciences II: Historical Geology                  | 3           |
| GEOL 1322                                                                       | Introductory Geo-sciences II: Historical Geology Lab              | 1           |
| GEOL 2225                                                                       | The Fossil Record                                                 | 4           |
| PHYS 1111 & PHYS 1311                                                           | Introductory Physics I and Introductory Physics I Lab             | 4           |

|                                            |                                    |           |
|--------------------------------------------|------------------------------------|-----------|
| PHYS 1112                                  | Introductory Physics II            | 4         |
| & PHYS 1312                                | and Introductory Physics II Lab    |           |
| PHYS 1125                                  | Physics of Color and Sound         | 3         |
| PHYS 1325                                  | Physics of Color and Sound Lab     | 1         |
| PHYS 2211                                  | Principles of Physics I            | 4         |
| & PHYS 2311                                | and Principles of Physics I Lab    |           |
| PHYS 2212                                  | Principles of Physics II           | 4         |
| & PHYS 2312                                | and Principles of Physics II Lab   |           |
| <b>Core IMPACTS Area : Social Sciences</b> |                                    | <b>6</b>  |
| Select one Behavioral Science course       |                                    |           |
| ECON 2105                                  | Principles of Macroeconomics       |           |
| ECON 2106                                  | Principles of Microeconomics       |           |
| PHIL 2030                                  | Moral Philosophy                   |           |
| PSYC 1101                                  | Introduction to General Psychology |           |
| SOCI 1101                                  | Introduction to Sociology          |           |
| Select one World Cultures course           |                                    | 3         |
| ANTH 1107                                  | Discovering Archaeology            |           |
| ANTH 1105                                  | Cultural Anthropology              |           |
| ANTH 2105                                  | Ancient World Civilizations        |           |
| ANTH 2136                                  | Language and Culture               |           |
| ENGL 2136                                  | Language and Culture               |           |
| GEOG 1101                                  | World Regional Geography           |           |
| HIST 1111                                  | World History to 1500              |           |
| HIST 1112                                  | World History since 1500           |           |
| ITDS 1156                                  | Understanding Non-Western Cultures |           |
| <b>Core IMPACTS Total Hours</b>            |                                    | <b>42</b> |
| <b>Health and Wellness</b>                 |                                    | <b>3</b>  |
| KINS 1106                                  | Lifetime Wellness                  | 2         |
| or PHED 1205                               | Concepts of Fitness                |           |
| Select one of the following                |                                    | 1         |
| Any PEDS course                            |                                    |           |
| MUSC 1206                                  | Body Mapping (Music Majors Only)   |           |

<sup>1</sup> The hours applied in the Institutional Priorities; Mathematics & Quantitative Skills; and Technology, Mathematics, and Sciences areas must add to 18 credit hours.

<sup>2</sup> ITDS 1145 Comparative Arts, though listed under both Fine Arts and Humanities, may be taken only once.

<sup>3</sup> At least 4 of the credit hours in this area must be in a lab science course.

## Major Requirements

| Code                                                 | Title                                                         | Credit Hours |
|------------------------------------------------------|---------------------------------------------------------------|--------------|
| <b>Core Requirements</b>                             |                                                               |              |
| Complete the core requirements for this program      |                                                               | 45           |
| Core Total                                           |                                                               | 45           |
| <b>Field of Study Requirements</b>                   |                                                               |              |
| A grade of "C" or better is required in each course. |                                                               |              |
| CPSC 1301K                                           | Computer Science I                                            | 4            |
| CPSC 1302K                                           | Computer Science II (1 Credit Hour to Required for the Major) | 4            |
| CPSC 2105                                            | Computer Organization                                         | 3            |
| CYBR 2159                                            | Fundamentals of Computer Networks                             | 3            |

|                                                                         |                                                                                |            |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------|
| CYBR 2160                                                               | Intro to Information Security                                                  | 3          |
| MATH 2125                                                               | Introduction to Discrete Mathematics (1 Credit Hour to Required for the Major) | 3          |
| Field of Study Requirements Total                                       |                                                                                | 18         |
| <b>Required for the Major</b>                                           |                                                                                |            |
| A grade of "C" or better is required in each CPSC and CYBR course.      |                                                                                |            |
| CPSC 2108                                                               | Data Structures                                                                | 3          |
| CPSC 3125                                                               | Operating Systems                                                              | 3          |
| CPSC 3165                                                               | Professionalism in Computing                                                   | 2          |
| CPSC 4157                                                               | Computer Networks                                                              | 3          |
| CPSC 4000                                                               | Baccalaureate Survey                                                           | 0          |
| CYBR 3106                                                               | Cybersecurity Risk Management                                                  | 3          |
| CYBR 3108                                                               | Defensive Programming                                                          | 3          |
| CYBR 3119                                                               | Fundamentals of Digital Forensics                                              | 3          |
| CYBR 3136                                                               | Wireless, IoT and Mobile Security                                              | 3          |
| CYBR 4416                                                               | Cybersecurity Practicum                                                        | 1          |
| 1 Credit Hour from Core IMPACTS: Mathematics                            |                                                                                | 1          |
| 1 Credit Hour from Field of Study Requirements CPSC 1302K               |                                                                                | 1          |
| 1 Credit Hour from Field of Study Requirements MATH 2125                |                                                                                | 1          |
| Required for the Major Total                                            |                                                                                | 27         |
| <b>Major Electives</b>                                                  |                                                                                |            |
| A grade of "C" or better is required in each CPSC, CYBR and FTA course. |                                                                                |            |
| The five courses below are required                                     |                                                                                |            |
| CPSC 3131                                                               | Database Systems I                                                             | 3          |
| CYBR 4127                                                               | Computer and Network Security                                                  | 3          |
| CYBR 4128                                                               | Penetration Testing and Countermeasures                                        | 3          |
| CYBR 4160                                                               | Applied Cryptography                                                           | 3          |
| CYBR 4166                                                               | Intrusion Detection and Prevention                                             | 3          |
| Select 9 credit hours from any CPSC/CYBR/FTA 3000 and above course      |                                                                                | 9          |
| Major Electives Total                                                   |                                                                                | 24         |
| <b>General Electives</b>                                                |                                                                                |            |
| Select 9 credit hours of general electives                              |                                                                                | 9          |
| General Electives Total                                                 |                                                                                | 9          |
| <b>Total Credit Hours</b>                                               |                                                                                | <b>123</b> |

## Program Map

| Course                                              | Title                                                                             | Credit Hours |
|-----------------------------------------------------|-----------------------------------------------------------------------------------|--------------|
| <b>First Year</b>                                   |                                                                                   |              |
| <b>Fall</b>                                         |                                                                                   |              |
| ENGL 1101                                           | English Composition I (minimum grade of C)                                        | 3            |
| MATH 1113                                           | Pre-Calculus (minimum grade of C)                                                 | 4            |
| Institutional Priorities                            | COMM 1110 Public Speaking or foreign language 1001, 1002, 2001, 2002 <sup>1</sup> | 3            |
| CPSC 1301K                                          | Computer Science I (minimum grade of C)                                           | 4            |
| Arts, Humanities, Fine Arts <sup>2</sup> and Ethics |                                                                                   | 3            |
| <b>Credit Hours</b>                                 |                                                                                   | <b>17</b>    |

**Spring**

|                                       |                                                                                                               |   |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------|---|
| ENGL 1102                             | English Composition II (minimum grade of C)                                                                   | 3 |
| MATH 2125                             | Introduction to Discrete Mathematics (minimum grade of C)                                                     | 3 |
| CPSC 1302K                            | Computer Science II (minimum grade of C)                                                                      | 4 |
| Technology, Mathematics, and Sciences | Science Elective with Lab <sup>1, 3</sup>                                                                     | 4 |
| Institutional Priorities              | ITDS 1779 (2), LEAD 1705 (2), PERS 1506 (1; may be repeated with different topic), PERS 1507 (2) <sup>1</sup> | 1 |

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**Credit Hours** **15**
**Second Year****Fall**

|                                       |                                                        |   |
|---------------------------------------|--------------------------------------------------------|---|
| CYBR 2159                             | Fundamentals of Computer Networks (minimum grade of C) | 3 |
| CPSC 2105                             | Computer Organization (minimum grade of C)             | 3 |
| CPSC 2108                             | Data Structures (minimum grade of C)                   | 3 |
| Arts, Humanities, and Ethics          | Humanities Elective <sup>2</sup>                       | 3 |
| Technology, Mathematics, and Sciences | Science Elective with Lab <sup>1, 3</sup>              | 4 |

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**Credit Hours** **16**
**Spring**

|                        |                                                    |   |
|------------------------|----------------------------------------------------|---|
| CYBR 2160              | Intro to Information Security (minimum grade of C) | 3 |
| CPSC 3131              | Database Systems I (minimum grade of C)            | 3 |
| STAT 1401              | Elementary Statistics                              | 3 |
| HIST 2111 or HIST 2112 | U. S. History to 1865 or U. S. History since 1865  | 3 |
| CPSC 3125              | Operating Systems (minimum grade of C)             | 3 |
| KINS 1106 or PHED 1205 | Lifetime Wellness or Concepts of Fitness           | 2 |

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**Credit Hours** **17**
**Third Year****Fall**

|                     |                                                        |   |
|---------------------|--------------------------------------------------------|---|
| CYBR 3136           | Wireless, IoT and Mobile Security (minimum grade of C) | 3 |
| CPSC 4157           | Computer Networks (minimum grade of C)                 | 3 |
| CYBR 3106           | Cybersecurity Risk Management (minimum grade of C)     | 3 |
| POLS 1101           | American Government                                    | 3 |
| Social Sciences     | Social Sciences Elective (Behavioral Science)          | 3 |
| Health and Wellness | PEDS Elective                                          | 1 |

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**Credit Hours** **16**
**Spring**

|           |                                                   |   |
|-----------|---------------------------------------------------|---|
| CPSC 3165 | Professionalism in Computing (minimum grade of C) | 2 |
| CYBR 3108 | Defensive Programming (minimum grade of C)        | 3 |

|                  |                                                         |   |
|------------------|---------------------------------------------------------|---|
| Program Elective | CYBR or CPSC 3000 and above course (minimum grade of C) | 3 |
| CYBR 3119        | Fundamentals of Digital Forensics (minimum grade of C)  | 3 |
| Social Sciences  | Social Science Elective (World Culture)                 | 3 |

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**Credit Hours** **14**
**Fourth Year****Fall**

|                   |                                                              |   |
|-------------------|--------------------------------------------------------------|---|
| CYBR 4160         | Applied Cryptography (minimum grade of C)                    | 3 |
| CYBR 4127         | Computer and Network Security (minimum grade of C)           | 3 |
| CYBR 4128         | Penetration Testing and Countermeasures (minimum grade of C) | 3 |
| Program Elective  | CYBR or CPSC 3000 above course (minimum grade of C)          | 3 |
| General Electives | General Electives                                            | 3 |

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**Credit Hours** **15**
**Spring**

|                   |                                                         |   |
|-------------------|---------------------------------------------------------|---|
| CYBR 4416         | Cybersecurity Practicum (minimum grade of C)            | 1 |
| CPSC 4000         | Baccalaureate Survey                                    | 0 |
| CYBR 4166         | Intrusion Detection and Prevention (minimum grade of C) | 3 |
| Program Electives | CYBR or CPSC 3000 and above course (minimum grade of C) | 3 |
| General Electives | General Electives                                       | 3 |
| General Electives | General Electives                                       | 3 |

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**Credit Hours** **13**


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**Total Credit Hours** **123**

<sup>1</sup> The hours applied in the Institutional Priorities; Mathematics & Quantitative Skills; and Technology, Mathematics, and Sciences areas must add to 18 credit hours.

<sup>2</sup> ITDS 1145 Comparative Arts, though listed under both Fine Arts and Humanities, may be taken only once.

<sup>3</sup> At least 4 of the credit hours in this area must be in a lab science course.

## Admission Requirements

There are no program specific admission requirements.

## Additional Program Requirements