# Bachelor of Science – Computing and Information Systems Major – Artificial Intelligence and Machine Learning Minor

## Four Year (120 credits)

2024/2025 [Program Requirements](https://www.athabascau.ca/calendar/2024/undergraduate/program-regulations/degrees/bachelor-of-science-computing-and-information-systems-major.html) - Effective September 1, 2024

This program plan will assist you in planning your program. You must follow the official program requirements for the calendar year in which you are enrolled.  
  
Please contact [FST Student Success Centre](http://scis.athabascau.ca/contact-us/index.php) for program planning assistance.

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| **Course Level Legend** JUNIOR / JR - 200 numbered course SENIOR / SR - 300 or 400 numbered course PREPARATORY - 100 numbered course | **Course Progress Legend** TR - Transfer Credit Awarded C - Completed AU Course IP - In Progress AU Course |

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| **LEVEL** | **TOTAL CREDITS** | **COURSE** | **REQUIREMENT** | **COURSE  PROGRESS** | **COMMENTS** |
| Junior | 3 | [ENGL 255](http://www.athabascau.ca/syllabi/engl/engl255.php) | Required Core  English Wiring Requirement |  | [Humanities](https://www.athabascau.ca/course/index.html?/undergraduate/humanities/all/) – ENGL 255 is strongly recommended, may choose a different ENGL course as long as a minimum grade of B- is achieved. |
| Junior | 6 | [MATH 215](http://www.athabascau.ca/html/syllabi/math/math215.htm) or [MATH 216](http://www.athabascau.ca/html/syllabi/math/math216.htm) | Required Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Junior | 9 | [MATH 265](http://www.athabascau.ca/html/syllabi/math/math265.htm) | Required Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Junior | 12 | [COMP 200](http://www.athabascau.ca/syllabi/comp/comp200.php) | Required Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Junior | 15 | [COMP 206](https://www.athabascau.ca/syllabi/comp/comp206.html) or [COMP 218](https://www.athabascau.ca/syllabi/comp/comp218.html) or [COMP 268](https://www.athabascau.ca/syllabi/comp/comp268.html) | Major Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/)  Must be different than the course selected to fulfill Major Core (credit line 24).  Also see NOTE below. |
| Junior | 18 | [COMP 272](https://www.athabascau.ca/syllabi/comp/comp272.html) | Major Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Junior | 21 | [MATH 270](https://www.athabascau.ca/syllabi/math/math270.html) | Minor Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Junior | 24 | [COMP 206](https://www.athabascau.ca/syllabi/comp/comp206.html) or [COMP 218](https://www.athabascau.ca/syllabi/comp/comp218.html) or [COMP 268](https://www.athabascau.ca/syllabi/comp/comp268.html) | Minor Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/)  \*COMP 218 is highly recommended.  Must be different than the course selected to fulfill Major Core (credit line 15).  Also see NOTE below. |
| Jr/Sr | 27 |  | Minor Elective |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) – see NOTE below |
| Jr/Sr | 30 |  | Minor Elective |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) – see NOTE below |
| Jr/Sr | 33 |  | Option |  | [Social Science](https://www.athabascau.ca/course/index.html?/undergraduate/social-science/all/) |
| Jr/Sr | 36 |  | Option |  | [Social Science](https://www.athabascau.ca/course/index.html?/undergraduate/social-science/all/) |
| Jr/Sr | 39 |  | Option |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Jr/Sr | 42 |  | Option |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Jr/Sr | 45 |  | Option |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Jr/Sr | 48 |  | Option |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 51 | [PHIL 333](http://www.athabascau.ca/html/syllabi/phil/phil333.htm) or [PHIL 371](http://www.athabascau.ca/html/syllabi/phil/phil371.htm) | Required Core |  | [Humanities](https://www.athabascau.ca/course/index.html?/undergraduate/humanities/all/) |
| Senior | 54 | [SCIE 326](http://www.athabascau.ca/html/syllabi/scie/scie326.htm) | Required Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 57 | [COMP 314](https://www.athabascau.ca/syllabi/comp/comp314.html) | Major Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 60 | [COMP 347](https://www.athabascau.ca/syllabi/comp/comp347.html) | Major Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 63 | [COMP 361](https://www.athabascau.ca/syllabi/comp/comp361.html) | Major Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 66 | [COMP 378](https://www.athabascau.ca/syllabi/comp/comp378.html) | Major Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 69 | [COMP](https://www.athabascau.ca/course/index.html?/undergraduate/science/computer-science/) | Major Elective |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 72 | [COMP](https://www.athabascau.ca/course/index.html?/undergraduate/science/computer-science/) | Major Elective |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 75 | [COMP](https://www.athabascau.ca/course/index.html?/undergraduate/science/computer-science/) | Major Elective |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 78 | [COMP](https://www.athabascau.ca/course/index.html?/undergraduate/science/computer-science/) | Major Elective |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 81 | [COMP](https://www.athabascau.ca/course/index.html?/undergraduate/science/computer-science/) | Major Elective |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 84 | [COMP 372](https://www.athabascau.ca/syllabi/comp/comp372.html) | Minor Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 87 | [MATH 315](https://www.athabascau.ca/syllabi/math/math315.html) | Minor Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 90 | [COMP 456](https://www.athabascau.ca/syllabi/comp/comp456.html) | Minor Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 93 | COMP 458 | Minor Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 96 |  | Option |  | [Any Area of Study](https://www.athabascau.ca/course/index.html?/undergraduate/all/all/) |
| Senior | 99 |  | Option |  | [Any Area of Study](https://www.athabascau.ca/course/index.html?/undergraduate/all/all/) |
| Senior | 102 |  | Option |  | [Any Area of Study](https://www.athabascau.ca/course/index.html?/undergraduate/all/all/) |
| Senior | 105 |  | Option |  | [Any Area of Study](https://www.athabascau.ca/course/index.html?/undergraduate/all/all/) |
| Senior | 108 | [COMP](https://www.athabascau.ca/course/index.html?/undergraduate/science/computer-science/) | Major Elective |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 111 | [COMP](https://www.athabascau.ca/course/index.html?/undergraduate/science/computer-science/) | Major Elective |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 114 | [COMP 482](https://www.athabascau.ca/syllabi/comp/comp482.html) | Major Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 117 | [COMP 494](http://www.athabascau.ca/syllabi/comp/comp494.php) | Required Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) |
| Senior | 120 | [COMP 495](https://www.athabascau.ca/syllabi/comp/comp495.html) | Major Core |  | [Science](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) – should be the last course or within the last set of courses in the program. |

Looking for suggestions on what COMP courses to take? [Explore our suggested COMP course list for specializations.](https://www.athabascau.ca/science-and-technology/resources/school-of-computing-information-systems/scis-elective-course-list-for-specializations.html)

**Overall Program Requirements**

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| **Minimums** |
| 30 credits – Residency requirement (courses through AU) |
| 15 credits – Residency requirement in the major (courses through AU) |
| 9 credits – Residency Requirement in the minor (courses through AU) |
| 72 credits – **Senior** (300/400) level |
| 72 credits – **Science credits** |
| 45 credits – **Senior** (300/400) level **Science** |
| 15 credits – **Senior Science credits at the 400 level** |
| 6 credits – In Social Science |
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| **Maximums** |
| 75 credits – In **any one Science discipline** |
| 12 credits – Amount of senior project credits (495/496) |
| 6 credits – At the preparatory (100) level |
| 30 credits – Prior Learning Assessment and Recognition (PLAR) |

**NOTE:**

**COMP 268** - Introduction to Computer Programming (Java):

Java is a reliable and multi-platform programming language, widely used in computing and information systems including web, mobile, and cloud applications and enterprise-level development. It has been a core programming language in many universities. You may choose this course if you don’t have a preference for other programming languages.

**COMP 206** - Introduction to Computer Programming (C++):

C++ is often a desired language in computer systems and game programming, or anything that is considered "computationally intensive". It can provide low-level control and high-performance code for software-hardware interfaces, operating systems, computer graphics, and high-performance computing. Students who are interested in game programming, computer graphics, embedded systems, and computer system level programming may choose this course.

**COMP 218** - Introduction to Computer Programming with Python:

Python is relatively easy to learn and use. It has extensive library support and is commonly adopted in many computing and its application areas including machine learning. Python is recommended for students who would take AI and machine learning, data analysis, and other related computing courses and minors.

**NOTE: Artificial Intelligence and Machine Learning Minor Electives** – Students must complete a minimum of 6 credits from any of the [Science disciplines](https://www.athabascau.ca/course/index.html?/undergraduate/science/all/) at the Junior or Senior level.