# Mathematics: Associate of Science Degree

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| **Faculty of Science and Horticulture** | kpu.ca/science |
| **Mathematics** | kpu.ca/mathematics |
| **Program Type** | Undergraduate |
| **Credential Granted** | Associate Degree |
| **Offered At** | Richmond<br>Surrey |
| **Start Date(s)** | September<br>January<br>May |
| **Intake Type** | Open intake |
| **Format** | Full-time<br>Part-time |
| **Instructional Cycle** | Semester-based |
| **Curriculum Effective Date** | 01-Sep-2016 |
| **How to Apply** | www.kpu.ca/admission |

## DESCRIPTION

The Associate Degree is designed to provide an educational experience that prepares students for work, citizenship and an enriched life as an educated person, and to lay a solid foundation for further study in the field of Mathematics.

## ADMISSION REQUIREMENTS

The Faculty's Admission Requirements, which consist of KPU's undergraduate English Proficiency Requirement, apply to this program.

## CURRICULAR REQUIREMENTS

Within the framework of the Associate of Science degree, students must complete at least 60 credits with a minimum overall GPA of 2.0 and a minimum passing grade (D or better) in each course:

### English Requirements

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| ENGL 1100 | Introduction to University Writing | 3 credits |
| And one additional first-year ENGL course. | | 3 credits |

### First Year Science Requirements

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| CPSC 1103 | Principles of Program Structure and Design I | 3 credits |

One of:

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| MATH 1120 | Differential Calculus | 3 credits |
| MATH 1130 | Calculus for Life Sciences I | 3 credits |
| MATH 1140 | Calculus I (Business Applications) | 3 credits |

One of:

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| MATH 1220 | Integral Calculus | 3 credits |
| MATH 1230 | Calculus for Life Sciences II | 3 credits |

One of:

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| PHYS 1101 | Physics for Life Sciences I | 4 credits |
| PHYS 1120 | Physics for Physical and Applied Sciences I | 4 credits |

And four more first-year science courses from the following:

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| ASTR 1120 | Introduction to Astrophysics | 4 credits |
| ASTR 2101 | Astrophysics I: Stellar Astrophysics | 3 credits |
| ASTR 2102 | Astrophysics II: Galactic Astronomy | 3 credits |
| BIOL 1110 | Introductory Biology I | 4 credits |
| BIOL 1210 | Introductory Biology II | 4 credits |
| CHEM 1105* | Introductory Chemistry | 4 credits |
| CHEM 1110 | The Structure of Matter | 4 credits |
| CHEM 1210 | Chemical Energetics and Dynamics | 4 credits |
| CPSC 1100 | Introduction to Computer Literacy | 3 credits |
| CPSC 1204 | Principles of Program Structure and Design II | 3 credits |
| CPSC 1250 | Introduction to Computer Design | 3 credits |
| GEOG 1110 | Atmospheric Science | 3 credits |
| GEOG 1120 | Earth Science | 3 credits |
| MATH 1112* | Pre-Calculus Algebra | 3 credits |
| MATH 1115† | Statistics I | 3 credits |
| MATH 1152 | Matrix Algebra for Engineers | 3 credits |
| MATH 2721 | Complex Numbers and Linear Algebra | 3 credits |
| PHYS 1100* | Introductory Physics | 4 credits |
| PHYS 1102<br>**or**<br>PHYS 1220 | Physics for Life Sciences II<br><br>Physics for Physical and Applied Sciences II | 4 credits<br><br>4 credits |
| PHYS 1170 | Mechanics I | 3 credits |

### Second Year Science Requirements

One of:

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| MATH 2321 | Multivariate Calculus (Calculus III) | 3 credits |
| MATH 2821 | Multivariate and Vector Calculus | 3 credits |

Three second-year Math courses chosen from:

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| MATH 2232 | Linear Algebra | 3 credits |
| MATH 2315 | Probability and Statistics | 3 credits |
| MATH 2321 | Multivariate Calculus (Calculus III) | 3 credits |
| MATH 2331 | Introduction to Analysis | 3 credits |
| MATH 2335† | Statistics for Life Sciences | 3 credits |

*In the event of a discrepancy between this document and the official KPU 2019-20 Calendar (available at www.kpu.ca/calendar/2019-20), the official calendar shall be deemed correct.*

2019-20 Calendar      **www.kpu.ca/calendar/2019-20**

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| **or**<br>MATH 2341† | Introduction to Statistics for Business | 4 credits |
| MATH 2410 | Discrete Mathematics | 3 credits |
| MATH 3322 | Vector Calculus (Calculus IV) | 3 credits |
| MATH 3421 | Ordinary Differential Equations | 3 credits |

Two more second-year science courses chosen from:

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| BIOL 2320 | Genetics | 4 credits |
| BIOL 2321 | Cell Biology | 4 credits |
| BIOL 2322 | Ecology | 4 credits |
| BIOL 2330 | Microbiology | 4 credits |
| BIOL 2421 | Cellular Biochemistry | 3 credits |
| CHEM 2311<br>**or** | Physical Chemistry for Life Sciences | 3 credits |
| CHEM 3310 | Physical Chemistry | 4 credits |
| CHEM 2315 | Analytical Chemistry | 4 credits |
| CHEM 2320 | Organic Chemistry I | 4 credits |
| CHEM 2420 | Organic Chemistry II | 4 credits |
| CPSC 2302 | Data Structures and Algorithms | 3 credits |
| CPSC 2405 | Introduction to Discrete Mathematics I | 3 credits |
| ENVI 2305 | Environmental Toxicology | 3 credits |
| GEOG 2310 | Climatology | 3 credits |
| GEOG 2320 | Geomorphology | 3 credits |
| GEOG 2390 | Geographic Information and Data Analysis | 3 credits |
| GEOG 2400 | Introduction to GIS | 3 credits |
| PHYS 2010 | Modern Physics | 3 credits |
| PHYS 2030 | Classical Mechanics | 3 credits |
| PHYS 2040 | Thermal Physics | 3 credits |
| PHYS 2330 | Intermediate Mechanics | 3 credits |
| PHYS 2420 | Intermediate Electricity and Magnetism | 3 credits |

## Additional Course Requirements

Any two courses in Arts, not counting English, plus,

Any other two university-transferable courses

**Notes**:

* Students transferring to a BSc should confirm transferability.

† Students will receive credit for only one of MATH 1115, MATH 2335, MATH 2341 towards an Associate of Science in Mathematics.

## CREDENTIAL AWARDED

Upon successful completion of this program, students are eligible to receive an **Associate of Science Degree in Mathematics**.

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2019-20 Calendar

**www.kpu.ca/calendar/2019-20**