

Science

Overview

Associate of Science

SPECIALIZATIONS

Science

Computer Science

Mathematics

Mathematics and Science Teacher Preparation

PURPOSE: The associate degree in Science is intended for those who plan to transfer to a four-year college or university to complete a bachelor of science degree in the natural and physical sciences, mathematics, or computer science. There are four specializations in this degree program that enable students to complete courses that align with their intended majors at a four-year college or university.

The **Science specialization** is designed for persons who plan to transfer to a four-year college or university in a major that requires a background in the natural or physical sciences and mathematics. With the many advances taking place in all areas of science, the opportunities for persons with expertise in this area are rapidly increasing. This program provides the necessary training for transfer into a broad range of scientific fields, from botany to zoology and from chemistry or geology to physics. In addition, the Science specialization is designed to meet the requirements for admission to a professional school or upper-division major for career preparation in many of the medical professions including nursing, pharmacy, medicine, and veterinary medicine.

The **Computer Science specialization** is designed for persons who plan to transfer to a four-year college or university in a major that requires a background in the sciences, mathematics, and computer science. Student familiarity with or expertise in computer science is frequently a requirement for study in the disciplines of biology, chemistry, physics, science education, engineering, manufacturing, and related fields. This program will provide the opportunity to obtain this needed preparation. In this rapidly changing field, students should regularly meet with their advisor to keep up with course and curriculum updates.

The **Mathematics specialization** is designed for persons who plan to transfer to a four-year college or university in a major that requires a background in the sciences, mathematics, and computer science. The Mathematics specialization includes the courses usually required in the first two years of a baccalaureate degree program in mathematics.

The **Mathematics and Science Teacher Preparation specialization** is designed for persons who plan to transfer to a four-year college or university in a major that requires a background in the sciences and/or mathematics, and who plan to teach at the elementary, middle, or secondary school level. The Mathematics and Science Teacher Preparation specialization enables the student to participate in field experiences in area schools.

ADMISSION REQUIREMENTS: General college curricular admission

PROGRAM NOTES: The following high school units are strongly recommended for the Science specialization: four units of English, three units of college preparatory mathematics, one unit of laboratory science, and two units of foreign language.

The following high school units are strongly recommended for the Computer Science and Mathematics specializations: four units of English; four units of college preparatory mathematics, including algebra (two units), geometry, and trigonometry (or advanced math); two units of laboratory science; and one unit of social studies. Students in the Computer Science and Mathematics specializations are urged to begin their programs of study during the fall semester because many courses are sequential and only offered once a year.

Students are encouraged to seek information from the upper-division college, university, or professional school to which transfer is intended as to specific requirements for a particular major or specific admission requirements.

NOTE TO PROSPECTIVE TEACHERS: Students who wish to be licensed to teach in Virginia should earn a baccalaureate degree in a liberal arts, science, or mathematics field. Students should consult with their advisor regarding elective choices that match their desired teaching endorsement area(s). While enrolled at the community college, students should prepare for and successfully complete Praxis Core (Reading, Writing, and Mathematics), the initial teacher licensure examination.

COMPUTER COMPETENCY REQUIREMENT: Students in this program will meet the college's computer competency requirement by passing the computer competency exam, administered in the testing centers on each campus, or by completing CSC 155. Students not passing the computer competency exam for CSC 155 may retake the exam only once.

REYNOLDS COMMUNITY COLLEGE

Roadmap

Science Specialization

COURSE	TITLE	LEC. HRS.	LAB. HRS.	CRS. CRE.
SDV 100	College Success Skills	1	0	1
ENG 111	College Composition I	3	0	3
_____ ^{1,3}	Approved Laboratory Science I	3	3	4
MTH 167 or MTH 263 ²	Precalculus with Trigonometry or Calculus I	5	0	5
CSC____	Computer Science Elective	3-4	0	3-4
TOTAL		14-16	3	15-17
ENG 112	College Composition II	3	0	3
_____ ^{1,3}	Approved Laboratory Science II	3	3	4
MTH 245 or MTH 261 or MTH 263 or MTH 264 ²	Statistics I or Applied Calculus I or Calculus I or Calculus II	3	0	3
_____ ¹	Social/Behavioral Science Elective	3	0	3
_____ ¹	Personal Wellness Elective	0-1	0-2	1
TOTAL		12-14	3-5	14-15
_____ ¹	Approved Mathematics, Laboratory Science, or Computer Science Elective	3-5	0-3	3-5
_____ ^{1,3}	Approved Laboratory Science ¹	3	3	4
HIS 101 or HIS 121	History of Western Civilization I or United States History I	3	0	3
_____ ¹	Humanities/Fine Arts Elective	3	0	3
_____ ^{1,4}	Approved Elective (does not include personal wellness courses)	3	0	3
TOTAL		15-17	3-6	16-18
_____ ¹	Approved Mathematics or Laboratory Science Elective	3-5	0-3	3-5
_____ ^{1,3}	Approved Laboratory Science II	3	3	4
HIS 102 or HIS 122	History of Western Civilization II or United States History II	3	0	3
_____ ¹	Humanities/Fine Arts Elective	3	0	3
_____ ¹	Approved Elective	3	0	3

TOTAL	15-17	3-6	16-18
Total Minimum Credits for AS Degree in Science, Science Specialization			61

¹ A list of approved general education electives (humanities/fine arts, social/behavioral sciences, mathematics, science, and personal wellness) is provided in the General Education section of the catalog under Curriculum Planning and Design.

² MTH 263-264 are recommended for students planning to major in Physics or Chemistry. Students not prepared for MTH 263 may be required to take MTH 167 prior to taking MTH 263.

³ Approved Laboratory Science I and II should be a year-long laboratory science, e.g., BIO 101-102 and PHY 201-202.

⁴ Approved elective cannot be a personal wellness course.

CURRICULUM:

Computer Science Specialization

COURSE	TITLE	LEC. HRS.	LAB. HRS.	CRS. CRE.
SDV 100	College Success Skills	1	0	1
ENG 111	College Composition I	3	0	3
_____ ¹	Laboratory Science I	3	3	4
MTH 263	Calculus I	4	0	4
CSC 201	Computer Science I	4	0	4
TOTAL		15	3	16
ENG 112	College Composition II	3	0	3
_____ ²	Personal Wellness Elective	0-1	0-2	1
_____ ¹	Laboratory Science II	3	3	4
MTH 264	Calculus II	4	0	4
CSC 202	Computer Science II	4	0	4
TOTAL		14-15	3-5	16
CSC 208	Introduction to Discrete Structures	3	0	3
CSC 205	Computer Organization	4	0	4
HIS 101 or HIS 121	History of Western Civilization I or United States History I	3	0	3
_____ ²	Humanities/Fine Arts Elective	3	0	3
TOTAL		13	0	13
_____ ³	Approved Mathematics, Laboratory Science, or Computer Science Elective	3-5	0	3-5
_____ ^{3,4}	Approved Elective (does not include personal wellness courses)	3	0	3

Transfer Associate Degrees & Certificates

HIS 102 or HIS 122	History of Western Civilization II or United States History II	3	0	3
_____ ²	Humanities/Fine Arts Elective	3	0	3
_____ ²	Social/Behavioral Science Elective	3	0	3
TOTAL		15-17	0	15-17
Total Minimum Credits for AS Degree in Science, Computer Science Specialization				60

¹ Selection of lab science depends upon the transfer institution selected. Students should consult their advisor for appropriate courses. Approved Laboratory Science I and II should be a year-long laboratory science, e.g., BIO 101-102 and CHM 111-112.

² A list of approved general education electives (humanities/fine arts, social/behavioral sciences, mathematics, science, and personal wellness) is provided in the General Education section of the catalog under Curriculum Planning and Design.

³ Students must see their advisor for appropriate courses. Students transferring to VCU should consider taking CSC 295 - Introduction to the Theory of Computations this semester.

⁴ Approved elective cannot be a personal wellness course.

CURRICULUM:

Mathematics Specialization

COURSE	TITLE	LEC. HRS.	LAB. HRS.	CRS. CRE.
SDV 100	College Success Skills	1	0	1
ENG 111	College Composition I	3	0	3
_____ ^{1,7}	Approved Laboratory Science I	3	3	4
MTH 263 ²	Calculus I	4	0	4
CSC _____ ³	Computer Science Elective	3-4	0	3-4
TOTAL		14-15	3	15-16
ENG 112	College Composition II	3	0	3
_____ ^{1,7}	Approved Laboratory Science II	3	3	4
MTH 264	Calculus II	4	0	4
_____ ⁴	Approved Elective	3-4	0-3	3-4
TOTAL		13-14	3-6	14-15
MTH 265	Calculus III	4	0	4
MTH 245 ⁵	Statistics	3	0	3
HIS 101 or HIS 121	History of Western Civilization I or United States History I	3	0	3

_____ ¹	Social/Behavioral Science Elective	3	0	3
_____ ¹	Humanities/Fine Arts Elective	3	0	3
TOTAL		16	0	16
_____ ⁶	Approved Mathematics, Laboratory Science, or Computer Science Elective	3-5	0-3	3-5
MTH 288	Discrete Mathematics	3	0	3
_____ ¹	Personal Wellness Elective	0-1	0-2	1
HIS 102 or HIS 122	History of Western Civilization II or United States History II	3	0	3
_____ ¹	Humanities/Fine Arts Elective	3	0	3
_____ ⁸	Approved Elective (does not include personal wellness courses)	3	0	3
TOTAL		15-18	0-5	16-18
Total Minimum Credits for AS Degree in Science, Mathematics Specialization				61

¹ A list of approved general education electives (humanities/fine arts, social/behavioral sciences, mathematics, science, and personal wellness) is provided in the General Education section of the catalog under Curriculum Planning and Design.

² Students not prepared for MTH 263 may be required to take MTH 167 prior to taking MTH 263. MTH 167 does not meet the graduation requirements for the Mathematics Specialization.

³ Students may take CSC 201 or another CSC programming course.

⁴ Approved electives include CSC 202, CSC 205, MTH 266, or another course approved by the student's advisor.

⁵ MTH 245 transfers as an elective for students majoring in mathematics at Virginia Tech and the University of Virginia. At VCU, MTH 245 transfers for a mathematics major if the student takes an additional upper-level statistics course at VCU; in this case, the student will receive credit for both MTH 245 and the upper-level statistics course.

⁶ It is expected that most students intending to major in mathematics will take MTH 267, Differential Equations, for this elective. For additional elective options, students should consult the list of approved electives in the General Education section of the catalog under Curriculum Planning and Design.

⁷ Approved Laboratory Science I and II should be a year-long laboratory science, e.g., BIO 101-102 and PHY 201-202.

⁸ Approved elective cannot be a personal wellness course.

CURRICULUM:

REYNOLDS COMMUNITY COLLEGE

Mathematics and Science Teacher Preparation

COURSE	TITLE	LEC. HRS.	LAB. HRS.	CRS. CRE.
SDV 101	Orientation to Teacher Preparation	2	0	2
ENG 111	College Composition I	3	0	3
_____ ^{1,4}	Approved Laboratory Science I	3	3	4
MTH 167 or MTH 263 ²	Precalculus with Trigonometry or Calculus I	5 4	0	5 4
CSC _____	Computer Science Elective	3-4	0	3-4
TOTAL		15-17	3	16-18
ENG 112	College Composition II	3	0	3
_____ ^{1,4}	Approved Laboratory Science II	3	3	4
MTH 245 or MTH 261 or MTH 263 or MTH 264 ²	Statistics I or Applied Calculus I or Calculus I or Calculus II	3 3 4	0	3 3 4
_____ ^{1,4}	Any 200-Level English Literature Course or Approved Humanities/Fine Arts Elective	3	0	3
HLT 106	First Aid and Safety	2	0	2
TOTAL		14-15	3	15-16
_____ ^{1,3}	Approved Mathematics, Laboratory Science, or Computer Science Elective	3-5	0-3	3-5
_____ ^{1,3}	Approved Laboratory Science I	3	3	4
HIS 101 or HIS 121	History of Western Civilization I or United States History I	3	0	3
EDU 200	Introduction to Teaching as a Profession	2	2	3
TOTAL		11-13	5-8	13-15
_____ ^{1,3}	Approved Mathematics or Laboratory Science Elective	3-5	0-3	3-5
_____ ^{1,3}	Approved Laboratory Science II	3	3	4
HIS 102 or HIS 122	History of Western Civilization II or United States History II	3	0	3
_____ ^{1,4}	Humanities/Fine Arts Elective	3	0	3
_____ ^{1,4}	Social/Behavioral Science Elective	3	0	3

TOTAL	15-17	3-6	16-18
Total Minimum Credits for AS Degree in Science - Mathematics and Science Teacher Preparation Specialization			60

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¹ A list of approved general education electives (humanities/fine arts, social/behavioral sciences, mathematics, science, and personal wellness) is provided in the General Education section of the catalog under Curriculum Planning and Design.

² MTH 263-264 are recommended for students planning to major in Physics or Chemistry. Students not prepared for MTH 263 may be required to take MTH 167 prior to taking MTH 263.

³ Students completing the Mathematics and Science Teacher Preparation Specialization with the intention of being a science teacher must check with their transfer institution to determine the appropriate elective. Students completing the Teacher Preparation Specialization in Mathematics and Science with the intention of being a mathematics teacher are strongly encouraged to contact their transfer institution to determine the appropriate elective.

⁴ Students should consult with their advisor and transfer institution to determine the best choice for their program.