Accelerated Dual Degree Program
B.A. Computing and Informatics (0710) / M.A. STEM Education (G845)

B.A. in Computing and Informatics

Academic Program Guide for **New First-Year Students** (Effective 2025)

Department of Computer Science (computerscience@rowan.edu)

Students who entered Rowan University prior to Fall 2018 should follow the guide for their program and start year in consultation with their advisor.

Rowan University Graduation Requirements for all Majors / Degrees

- Students must complete at least 120 semester hours (sh) of coursework that apply to their Rowan University degree.
- Students must have a cumulative GPA of at least 2.0 in Rowan University coursework. (Transfer courses/credit do not count toward the RU GPA.)
- A minimum of 30 sh of coursework must be completed at/through Rowan University.
- Only grades of "D-" or above may apply to graduation/degree requirements. (Some programs may set higher minimums.)
- Students must meet the Rowan Core and Rowan Experience Requirements.
  - An individual course can potentially satisfy one Rowan Core literacy and/or multiple Rowan Experience attributes.
  - Rowan Core & Rowan Experience designations are listed in course details in Section Tally (www.rowan.edu/registrar) and may also be searched on that site under "Attributes." A list of Rowan Core courses is here: https://confluence.rowan.edu/display/AS/Rowan+Core+Course+List.
- Students must apply for graduation and should do so for the term in which they will complete all program requirements.

Program-Specific Graduation Requirements for this Major / Degree

- Graduate courses may be counted as restricted electives when takes as senior privilege or part of the accelerated BS/MS degree program.

Rowan Core Requirements[1]

*Students must satisfy all **six** Rowan Core Literacies. A minimum total of 3 sh of coursework is required to satisfy each Literacy.*
With the exception of the 9 sh counted here for Communicative Literacy, credits attached to the courses in this section will apply elsewhere.

◯ (COML) Communicative Literacy: *Must be met by the following three courses or their official equivalents:*

◯ COMP 01111 College Composition I (3 sh) ◯ COMP 01112 College Composition II (3 sh) ◯ CMS 04205 Public Speaking (3 sh)*

***CMS 04205 is required as pre-requisite for one or more major courses in this program. Therefore, CMS 04205 or its transferred equivalent must be taken to fulfill this degree**

◯ (ARTL) Artistic Literacy *Recommendation from major:*

◯ (GLBL) Global Literacy *Recommendation from major:*

◯ (HUML) Humanistic Literacy *Recommendation from major:* INTR 01265 (3 sh counted under non-program)

◯ (QNTL) Quantitative Literacy *Recommendation from major:* STAT 02260; MATH 03125 or 01130 (3 or 4 sh counted under non-program)

◯ (SCIL) Scientific Literacy *Recommendation from major:* Any Biology course recommended[2]

Subtotal of credits counted in this section: 9 sh

Rowan Experience Requirements

Students must satisfy all three Rowan Experience attributes. Credits attached to the courses in this section will apply elsewhere.

◯ (LIT) Broad-Based Literature Attribute *Recommendation from major:*

◯ (WI) Writing Intensive Attribute *Recommendation from major:* WA 01302 Technical Writing (3 sh counted under major)

◯ (RS) Rowan Seminar Attribute[3] *Required for major:* CS 00100 Computer Science Learning Community (1 sh)

Non-Program Courses (minimum 18 sh)

Courses in this section cannot be in the major department.

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
STAT 02260, MATH 03125 or MATH 01130	Statistics I, Calculus: Techniques & Applications or Calculus I	Satisfies Quantitative Literacy			3, 3 or 4
INTR 01265	Computers and Society	Satisfies Humanistic Literacy			3
WA 01302	Technical Writing	Writing Intensive			3

[1] The Rowan Core requirements are waived for transfer students with an earned A.A. or A.S. degree from a NJ community/county college.

[2] Either a Biology course **or** HLTH 00103 Health and Wellness is required for the ADDP program.

[2][3]Required for all students

[3]

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PSY 09210	Adolescent Development	Required for the ADDP program			3
				Subtotal:	18 sh

Summary of Major Requirements

- 20 sh of Foundational Courses
- 9 sh of Upper-Level and Capstone Courses
- 12 sh of Computing and Informatics Restricted Electives
- 41 sh total

Foundational Courses

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
PHIL 09130, MATH 03160 or MATH 03150	Introduction to Symbolic Logic, Discrete Structures or Discrete Math				3
CS 01104, CS 04171 or CS 04110	Introduction to Programming and Problem Solving Creating Android Apps or Introduction to Programming Using Robots				3
CS 04103	Computer Science and Programming				4
CS 04210	Advanced Programming Workshop	2 sections of course must be taken with different topics (e.g., JS, C#)			2
CS 04210	Advanced Programming Workshop				2
CS 04225	Principles of Data Structures				3
CST 09210	Intro to Computer Networks & Data Communication				3
				Subtotal:	20 sh

Upper-Level and Capstone Courses

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
MIS 02337 / CS 10337 or CS 10338 and CS 10339	**Database Coursework.** Choose one of the options below: Applied Database Technologies (3 credits) or SQL In-depth (1 credit) and Database Modeling and Design (2 credits)				3
CS 10310	Introduction to Web Development				3
CS 10430	Computing & Informatics Capstone Experience				3
				Subtotal:	9 sh

Computing and Informatics Restricted Electives

Choose 12 credits from the courses below.

	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
○	BINF 07250	Intro to Bioinformatics				3
○	CS 01211	Principles of Information Security				3
○	CS 01295	Special Topics in Computer Science	multiple sections of this course with different topics can be taken.			3
○	CS 01395	Topics in Computer Science	multiple sections of this course with different topics can be taken.			3
○	CS 02370	Introduction to Information Visualization				3
○	CS 02421	Big Data Tools and Techniques				3
○	CS 02485	Web and Text Mining				3
○	CS 03355	Cybersecurity, Management, Policy, and Risk				3
○	CS 04215	Computer Laboratory Techniques				3
○	CS 04350	Blockchain Programming				3
○	CS 04372	Advanced Android Programming				3
○	CS 04376	Advanced iOS Programming				3
○	CS 04444	Human Computer Interaction				3

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	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
○	CS 04471	Topics in Mobile Programming				3
○	CS 06205	Computer Organization				3
○	CS 06447	Introduction to IoT Upper Stack				3
○	CS 99300	Computer Field Experience				3
○	CS 99310	Advanced Learning Assistant Exp. in CS	Requires permission of instructor			3
○	CS 99490	Computer Science Research II				3
○	CS 10200	Fundamentals of Network Security				3
○	CS 10250	Cryptography and Blockchain Essentials				3
○	CS 10271	Introduction to Android Programming				3
○	CS 10275	Introduction to iOS Programming				3
○	CS 10340	Systems Administration				3
○	CS 10342	Web Server Platforms				3
○	CS 10344	Concepts of Computing Technologies				3
○	CST 02220	Database Administration I				3
○	CST 02230	Database Development				3
○	CST 02250	Database Security				3
○	CST 02320	Database Administration II				3
○	CST 02330	Database Programming				3
○	CST 02400	Database Warehouse Principles				3
○	CST 03201	Security +				3
○	CST 03215	Penetration Testing Fundamentals				3
○	CST 03218	Ethical Hacking Fundamentals				3
○	CST 03252	Foundations of Computer Forensics				3
○	CST 03253	Applications for Digital Forensics				3
○	CST 03270	Introduction to Intrusion Detection				3
○	CST 03315	Advanced Penetration Testing				3
○	CST 03352	Digital Incident Handling				3
○	CST 03370	IDS/IPS Administration				3
○	CST 03372	Knowledge Management of IDS/IPS				3
○	CST 03410	Cyber Defense				3
○	CST 03418	Advanced Topics in Ethical Hacking				3
○	CST 03452	Advanced Digital Forensics Investigation				3
○	CST 03472	IDS/IPS for Cloud				3
○	CST 06220	Linux/Unix Essentials				3
○	CST 06225	Linux/Unix Administration				3
○	CST 06230	Microcomputer Operating Systems I: Workstation				3
○	CST 06235	Microcomputer Operating Systems II: Server				3
○	CST 06240	Linux Systems and Services				3
○	CST 06340	Introduction to Azure Cloud Services				3
○	CST 06343	Azure Management Tools and Security				3
○	CST 06440	Azure Security, Compliance, and Identity				3
○	CST 09290	Intermediate Networking				3
○	CST 09310	Network Support and Troubleshooting				3
○	CST 09320	Network Architectures, Models, and Protocols				3
○	CST 09325	Network Communication and Configuration				3
○	CST 09430	Switching, Routing, and Wireless Essentials				3
○	CST 09435	Enterprise Networking, Security, and Automation				3
○	BIOL 01301	Data Science for Biologists				3
○	ENT 06351	Technology Entrepreneurship				3
○	GEOG 16160	Digital Earth: Mapping & Geographic Info Science				3
○	GEOG 16260	Geographic Info Science I				3
○	GEOG 16261	Cartography				3

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	Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
○	GEOG 16360	Applications of Geographic Information Systems				3
○	GEOG 16462	Web-based GIS Mapping				3
○	HIST 05399	Digital History				3
○	MIS 02302	Emerging Technologies I				3
○	MIS 02303	Emerging Technologies II				3
○	MIS 02325	Project Management				3
					Subtotal: 12 sh	

Free Electives for this Major/Degree (51 sh)

Students should choose Free Electives that satisfy any Rowan Core or Rowan Experience requirements that are not fulfilled by Major or Non-Program courses.

Course #	Course Name	Course Attributes / Notes	Sem/Yr	Grade	Credits
				Subtotal: 51 sh	

Total Program Credits Required for this Major / Degree: 120 SH

Program Information

- In the final two semesters of the undergraduate portion of the ADDP program, students should take the following courses:
  - STEM 60501 STEM Teaching & Research Methods I (3)
  - STEM 60510 Teaching STEM in Diverse Settings (3)
  - READ 30520 Adolescent Literacies (3)
  - SMED 60550 Schools & Society: Foundations for Secondary Teaching (3)
- These 12 credits will count towards the 33 credits required by the M.A. in STEM Education as well as the 120 credits required for the B.A. program. These 12 credits will take the place of the four-program restricted elective courses in the Computing and Informatics program ***provided the students successfully complete the M.A. in STEM Education***.
- Students in the ADD programs are still required to fulfill the requirements of the undergraduate degree by the completion of their final undergraduate year.
- If a student reverts back to the undergraduate major and does not fulfill the requirements of the MA program, they will need to fulfill all the requirements of the undergraduate degree to graduate including the four Computing and Informatics Restricted Electives.

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Master of Arts in STEM Education

Program Requirements

The M.A. in STEM Education is a 33 credit-hour program. 12 of the 33 credits are pre professional courses that must be completed prior to complete matriculation into the MA STEM program. Students may complete these courses during their senior year. After which, they need to address the rest of the coursework mounting to 21 credits before the Master of Arts degree is issued.

Program Features

Rowan University's Master of Arts in Science, Technology, Engineering, and Mathematics (STEM) Education prepares students for successful careers as highly skilled math and science teachers. The M.A. in STEM Education offers the unique opportunity for students who have undergraduate degrees in mathematics, engineering, or the sciences to pursue an initial New Jersey teaching certificate in mathematics and/or the sciences and a master's degree simultaneously. This program is carefully designed such that all coursework has a STEM (Science, Technology, Engineering, Mathematics) focus that provides the ideal pedagogical preparation for prospective mathematics or science teachers in the K-12 setting. This 13-month program includes early field experience, face-to-face, online, and hybrid courses, and a yearlong teacher residency designated as clinical practice. The culminating experience is a seminar in which students transition from teacher candidate to teacher by planning for leading their own classrooms. The M.A. in STEM Education is offered through Rowan University's CAEP Accredited College of Education.

The New Jersey Department of Education (NJ DOE), not Rowan University, grants certifications based on requirements set by the state. While coursework for this program meets the academic requirements for NJ DOE certification, it is the student's responsibility to ensure that all other certification requirements are met, including, but not limited to, appropriate type and level of license and years of experience. NJ DOE certification requirements are subject to change. Certification applications are evaluated by NJ DOE, based on the most current state requirements. For current NJ DOE licensure information, visit: http://www.state.nj.us/education/educators/license

The M.A. in STEM Education at Rowan University requires the completion of 33 graduate semester hours (S.H.) made up of 12 courses. This program includes ongoing meetings with a collaborating teacher during the summer of initial coursework as well as a full year of clinical practice, working in a middle or high school during the day Monday through Thursday, with Fridays reserved for coursework. Specific certification areas are below and each will require a specific set of foundation courses and additional admission requirements:

- K-12 Biology
- K-12 Chemistry
- K-12 Earth Science
- K-12 Mathematics
- K-12 Physical Science
- K-12 Physics
- K-12 Computer Science

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Master of Arts in STEM Education

Program Summary

CURRICULUM

The MA in STEM Education is a full-time program offered on the Rowan University, Glassboro, NJ campus. It requires the completion of 33 graduate semester hours (12 courses), which are completed in 4 consecutive semesters (Summer, Fall, Spring, Summer). Students take courses designed to develop their knowledge of STEM educational theory and praxis, and there are two clinical experiences during the pre-professional coursework and then a full year clinical practice experience taken alongside the specialized methodology courses ending with a culminating professional seminar course.

COURSEWORK

- 12 Courses/ 33 Semester Hours
- Foundation Courses: Yes
- Graduation / Exit / Thesis Requirements URL: No

MINIMUM GRADE AND CUMULATIVE GPA REQUIREMENTS

- All matriculated and graduate students are expected to maintain satisfactory academic progress each term of enrollment.
- MA STEM students must maintain a minimum 3.0 GPA with no course final grade below a B-. **Any course with a final grade below a B- must be repeated** before moving forward in the program.

Admission Requirements

Applicants to the Accelerated Dual Degree of Computing & Informatics/ MA STEM program will follow university policy for ADD LEVEL Matriculation as designated (see https://sites.rowan.edu/registrar/cadp/cadp-policies-and-procedures.html) , Specific to this ADD program, candidates will submit applications for admission to the graduate program in the fall semester of their sophomore year of the undergraduate program. Application requirements are as follows:

- A minimum overall GPA of 3.0 in undergraduate coursework
- Students must complete, and their advisor must submit to the Office of the University Registrar, an ADD Student Agreement and Confirmation Form in order to be officially matriculated into and properly coded for an ADD.
- Complete submission of Transition and Transfer form with official signatures
- Proof of completion of BA requirements in the specific Science major or Math major demonstrating a coherent sequence of at least 30 credit hours of content specialization courses; 12 of which are at the 300 level or higher.
- Complete successfully the following two undergraduate required courses or equivalents:
    - Adolescent Psychology (or confirmed state equivalent)
    - Health & Wellness or Nutrition or Biology (human related preferable). If not completed see graduate advisor regarding alternative.
- Grades B- or better in any graduate education courses relevant to MA STEM program. All required graduate courses including the 4 for entry (see italicized courses in table below) into the MA in STEM Education program may only be attempted twice.
- Passing scores on relevant Praxis II exams **prior to** graduation from the MA STEM program
- Submission of NJDOE Criminal Background check **by August 1st** prior to entry into Senior year
- Submission of clear TB test **by August 1st** prior to entry to Senior year. Mantoux (TB) Tests: School districts are now requiring current TB tests for all field placements. Please visit http://www.rowan.edu/colleges/education/ofe/mantoux.html for details.
- Completed Full-Year Clinical Practice application in the designated College of Education Database platform system **(Between November 1- November 30th during senior year.)**

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Master of Arts in STEM Education

PLEASE NOTE: Students who choose not to complete the Master's (Accelerated Dual Degree portion of the program will still be eligible to earn the B.A. in Computing & Informatics. These students will have to consult their advisors to identify additional approved Career Track courses.

Course #	Title	S.H.
Required Courses: 22 S.H.		
**STEM 60501*	*STEM Teaching & Research Methods I*	3
**STEM 60510*	*Teaching STEM in Diverse Settings*	3
**READ 30520*	*Adolescent Literacies*	3
STEM 60504	Professional Seminar for STEM Education	3
STEM 60513	STEM Clinical Practice II	3
STEM 60512	STEM Clinical Practice I	1
SELN 60576	Inclusive Instruction in STEM Classrooms	3
**SMED 60550*	*Schools & Society: Foundations for Secondary Teaching*	3
STEM 60524	STEM Teaching & Research Clinical Seminar I	1
STEM 60525	STEM Teaching & Research Clinical Seminar II	1
Mathematics Concentration Courses: 11 S.H.		
STEM 60502	STEM Teaching & Research Methods II: Mathematics	~~4~~
STEM 60503	STEM Teaching & Research Methods III: Mathematics	5
Science Concentration Courses: 11 S.H.		
STEM 60522	STEM Teaching & Research Methods II: Science	4
STEM 60523	STEM Teaching & Research Methods III: Science	5
**EDTC 33700	STEM Teaching & Research Methods II: Computer Science	4
**CS60600	STEM Teaching & Research Methods III: Computer Science	5

These are the four graduate courses candidates can take in their undergraduate senior year

****These method courses are only offered to computer science majors seeking teacher certification. Computer science teacher candidates take these two courses in lieu of the general science method courses STEM 60522 and STEM 60523***

Transfer Credit Evaluation Policy

Program does not accept transfer credit

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