STEM EDUCATION-ACCELERATED GEOLOGY&EDUCATION (G845 &C026)

ACCOMPANYING PROGRAM GUIDE TO MA STEM HANDBOOK FOR BA GEOLOGY MAJORS

ELIGIBILITY FOR ADMISSION AND COMPLETION OF PROGRAM 2025-2026

INTRODUCTION

The purpose of this program guide is to provide all native and transfer students interested in pursuing K- 12 Earth Science certification in the undergraduate STEM Education -Accelerated program the requirements needed to accomplish a certification in the teaching of Earth Science. The following pages provide the candidate with benchmarks for program entry and completion along with general College of Education policies regarding this program.

Candidates are also provided with a sample Table (Table 1) that demonstrates possible program course sequence that can be targeted to help develop their content background for teaching middle and/ or high school Earth Science. Please note that Table 1 is merely a sample for demonstrative purposes. ***Choice and sequence of Geology courses and general education courses need to be confirmed with the undergraduate science advisor***. ***Candidates can choose to target any science content core courses throughout their Geology program only with the consent and approval of their science advisor.***

Education based courses in particular, that are to be taken prior to any graduate level course belonging to the MA STEM sequence, must be approved through the undergraduate STEM Education- Accelerated program science and education advisor.

NOTE: Please be aware that any disciplinary or academic sanctions will/may result in extended time for program completion and will prolong graduation.

Benchmark Exemptions:

On June 4, 2014, the State Board of Education adopted new regulations for teacher preparation program entry and teacher certification. These rules include a new basic skills requirement:

- Candidates starting a traditional teacher preparation program in or after the 2015-16 academic year must pass a basic skills assessment prior to starting coursework in a program.
- Alternate route candidates seeking a Certificate of Eligibility (CE) must pass a basic skills assessment to obtain the CE as of September 1, 2015.

Candidates seeking Limited CEAS (see: https://www.nj.gov/education/certification/CE-CEAS-pilotprogram.shtml) can have either GPA waived or a praxis core score waived upon application of the MA STEM program. Please indicate this if you seek a Limited CEAS to your undergraduate **education** advisor. ***(please also see the MA STEM Program handbook for more information on alternate pathways requirements to certification)***

See https://www.nj.gov/education/certification/testing/req/ for required cut scores per subject area

PROGRAM TRANSITION POINTS AND REQUIREMENTS

Entry requirements into B.A. Geology please see https://earth.rowan.edu/departments/geology/Programs.html

- Check academic program guide for B.A. in Geology at https://sites.rowan.edu/registrar/_docs/program-guide-geology-ba---rc.pdf

Transition Point 1: Entry Requirements for Education Coursework in Senior Year (Deadline: March 31 during Junior Year)

- *Achieve and maintain Overall/ Cumulative GPA of 3.0 or above *(nonnegotiable / non appealable)*
- Grades C- or better in any undergraduate education courses. Required courses for entry into the MA in STEM Education program may only be attempted twice..
- Submission of Matriculation packet to STEM Education- Accelerated undergraduate advisor **by August 1st** prior to entry into Senior year
- 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.
- Attend advising session with College of Education Advisor
- Completion with a C- or higher in Adolescent Development and either a Health and Wellness course or any general Biology course or a nutrition course.

Transition Point 2: Entry Requirements for Matriculation into MA STEM (March 31 of Senior Year)

- *Achieve and maintain Overall/ Cumulative GPA of 3.0 or above
- . Grades C-or better in any undergraduate education courses. Courses required for the MA in STEM Education may only be attempted twice.
- Grades for Graduate courses being taken as part of matriculation in the senior year for MA STEM must have a minimum of B- each.
- *Praxis II in Earth Science: Content Knowledge; test code 5572 and General Science Knowledge (5436) **prior to MA STEM graduation** (Required score: **154 and 141 respectively**). See: https://www.nj.gov/education/certification/testing/req/
- Completed Full-Year Residency application in the College of Education designated data base system **(Between November 1- November 30 during senior year**)
    - *Note: Students will be placed in the 7 most southern NJ counties for their Clinical Practice Placement; Burlington, Camden, Gloucester, Atlantic, Cumberland, Salem and Cape May. No exceptions will be made.*

Transition Point 3: Checkpoint for completion of BA/ BS and senior level education coursework (End of Spring semester i.e. Semester 8- senior year):

- Submission of Transfer & Transition Forms
- Proof of completion of BA/BS requirements in Geology 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**:
    - Adolescent Psychology (or confirmed state equivalent)
    - Health & Wellness or Nutrition or Biology (human related preferable). If not completed see graduate advisor regarding alternative.

Transition Point 4: For successful program completion (At the end of the graduate year)

- Overall GPA of 3.0 or better *(nonnegotiable / non appealable) at exit of the program* with no course grade lower than B- and no *Incompletes.*
- Meets minimum expectations on all signature assignments.
  - *Successful submission and completion of Institution approved summative teacher performance assessments (iTPA and Impact on Student Learning Assessment).
  - Final residency evaluation demonstrates "Developing" or higher on all Danielson Framework indicators and "Meets Expectations" or higher on all SPA addendum indicators as evidence by successful completion of STEM 60512 AND 60513
  - Successful completion and recommendation for certification from Rowan University Clinical Practice supervisor and Program Coordinator.

Graduation and Certification: Please note the completion and submission of both graduation and teaching certification applications. See dates listed on the Registrar's webpage at www.rowan.edu/Registrar. Students apply for graduation electronically through banner self-service and apply for certification through the College of Education Advising Center (CEAC). A student can obtain a cert application through the College of Education Advising Center or online on the College of Education webpage. **It is important that these forms be submitted to the appropriate office by the printed deadline dates.** "Walking" papers are not a means to graduate. It is only a means to participate in the commencement ceremony. Go to www.rowan.edu/registrar (under forms) for the Commencement Participation Form and deadline/details (signatures are needed). Completed certification application with OCE at College of Education. Deadline: **January 15th -March 31st of graduate year.**

***Essential Notes**

- Please note that required values and passing for GPA, all praxis exams and iTPA/ Impact on Student Learning Assessment are non-negotiable and non- appealable
- *Incomplete or unscorable tasks on iTPA/ Impact on Student Learning Assessment will/ may delay graduation and* certification.
- For all students, all of the **required courses and any eligible electives *(this means all allied science and math classes pertinent to your Geology GPA)*** *must* be used in the calculation of the Geology GPA (i.e., none of these courses is to be excluded in GPA calculation).
- For transfer (and native students taking any of these courses at other institutions), the Geology GPA is to be calculated from transcripts and coursework at Rowan.
- **Please also reference** both the MA STEM Program and Clinical Practice Handbooks for more detailed information

STEM Education – Accelerated
(BA Geology Majors & MA in STEM Education)

Table 1: Proposed Course Sequence with Transition Points. Table demonstrates a sample of course sequence throughout the STEM Education- Accelerated B.A. Geology and MA STEM program. Courses listed are examples of courses that can be taken in Geology but decision(s) pertaining to choice of designated science courses is reserved for the relevant science department. Transition points indicate deadline for meeting particular benchmarks.

Year 1	**Semester 1 (13 credits)**	**s.h.**	**Semester 2 (15 credits)**	**s.h.**
Courses that should normally be taken in the freshman year	COMP 01111: College Comp I	3	COMP 01112: College Comp II	3
	GEOG 16100 Earth, People, and the Environment	3	CHEM 06100 Chemistry I	4
	STAT 02101 Statistics I	3	MATH 01123 College Algebra	4
	GEOL 01101 Physical Geology	4	GEOL 01102 Historical Geology	4
Year 2	**Semester 3 (18 credits)**	**s.h.**	**Semester 4 (18 credits)**	**s.h.**
Courses that should normally be taken in the sophomore year	GEOL 01201 Mineralogy and Petrology	4	GEOL 01230 Paleoclimatology	4
	PHYS 00210 Physics I	4	PHIL 09.369 :Philosophy of Science (HHL) (recommended)	3
	CMS 04.205: Public Speaking	3	**PSY 09.210: Adolescent Development (SBS)	3
	CHEM 06101Chemistry II	3	BIOL 01104 Introduction to Evolution and Scientific Inquiry	4
	GEOL 01210 Invertebrate Paleontology	4	GEOL 01240 Introduction to Field Methods	4
Year 3	**Semester 5 (13-15 credits)**	**s.h.**	**Semester 6 (13-14 credits)**	**s.h.**
Courses that should normally be taken in the junior year	Free/ Major Concentrated Elective	3-4	GEOL 01340 Structural Geology	4
	**HLTH 00103: Health and Wellness OR a Biology course (NPC)	3–4	Free/ Major Concentrated Elective	3
	GEOL 01320 Sedimentology and Stratigraphy	4	EVSC 01.101/ ENST 94.101 Planet in Peril	3
	EVSC 01.120 Oceans in Crisis	3	ASTR11.100 Introductory Astronomy: Stars & Galaxies (OR ASTR11.200 Introductory Astronomy: Solar System & Exoplanets OR ASTR11.120 Introduction to Astronomy (Lecture and Lab) OR ASTR.11.230 Introductory Astrophysics	3-4
			TRANSITION POINT 1	
Year 4	**Semester 7(13 credits) credits)**	**s.h.**	**Semester 8 (15 credits)**	**s.h.**
Courses that should normally be taken in the senior year	GEOL 01450 Senior Seminar in Geology	4	Free/ Major Concentrated Elective	3
	*SMED 60.550: Schools & Society: Foundations for Secondary Teaching	3	*STEM 60510: Teaching STEM in Diverse Settings	3
	GEOL 01460 Current Research in Geology	1	Free/ Major Concentrated Elective	3
	GEOL 01470 Research Experience in Geology	2	*READ 30520: Adolescent Literacies	3
	*STEM 60501: STEM Teaching & Research Methods I	3	Free/ Major Concentrated Elective	3
			TRANSITION POINTS 2 & 3	
Year 5	**Semester 9 (9 credits)**	**s.h.**	**Semester 10 (9 credits)**	**s.h.**
Courses that should normally be taken in Master's degree year	STEM 60522: STEM Teaching & Research Methods: Science II	4	STEM 60523: STEM Teaching & Research Methods: Science III	5
	STEM 60524; STEM Clinical Seminar I	1	STEM 60525; STEM Clinical Seminar II	1
	*STEM 60512: STEM Clinical Practice I	1	*STEM 60513: STEM Clinical Practice II	3
	SELN 60576: Inclusive Instruction in STEM Classrooms	3	**TRANSITION POINT 4**	
			Semester 11 (3 credits)	**s.h**
			STEM 60504: Professional Seminar for STEM Educators	3
TOTAL CREDITS 4+1 B.A. GEOLOGY AND M.A. STEM EDUCATION				**141-142**

** **Required for MA STEM matriculation**.
*Indicates courses with field

For General Education requirements and credits please see your science advisor for your science major. However, please note that the courses required to earn initial NJ certification to teach in the public schools, but may not be required for BA in Geology are. **Adolescent Development (satisfies SBS) AND Health and Wellness (HLTH 00103) OR a biology course OR a Nutrition course .**

Table 2. Sample Coursework Breakdown.

Required Course Work for the STEM Education Accelerated B.A. Geology + M.A. in STEM Education

B.A. in Geology Coursework Credit Hours. ***Please note that all course prerequisites and co –requisites for the undergraduate Geology portion of this dual degree are as identified by the Geology department and indicated in the B.A. Geology program guide.***

Geology Major Core Courses: 37 credits	**Credits**	
GEOL 01101 Physical Geology	4	
GEOL 01102 Historical Geology	4	
GEOL 01201 Mineralogy and Petrology	4	
GEOL 01210 Invertebrate Paleontology	4	
GEOL 01230 Paleoclimatology	4	
GEOL 01240 Introduction to Field Methods	4	
GEOL 01320 Sedimentology and Stratigraphy	4	
GEOL 01340 Structural Geology	4	
GEOL 01450 Senior Seminar in Geology	4	
GEOL 01460 Current Research in Geology	1	
ROWAN Core Requirements : 9 credits	**Credits**	
as recommended by B.A. Geology major		
Geology Non Program Courses: 25 credits	**Credits**	
GEOL 16100 Earth, People and the Environment	3	
STAT 02101 Statistics I	3	
CHEM 06100 Chemistry I	4	
CHEM 06101 Chemistry II	4	
PHYS 00210 Physics I	4	
BIOL 01104 Introduction ot Evolution and Scientific Inquiry	4	
MATH 01123 College Algebra	3	
Restricted/ Free Elective Courses: 49-50 credits	**Credits**	
**PSY 09.210 Adolescent Development	3	
**FNDS 21.230Characteristics of Knowledge Acquisition OR PSY 22.215 Educational Psychology	3	
**HLTH 00103 Health and Wellness OR a Biology course.	3	

*** SMED 60.550:Schools & Society, Foundations for Secondary Teaching	3	
*** STEM 60501: STEM Teaching and Research Methods I	3	
*** READ 30520: Adolescent Literacies	3	
*** STEM 60510: Teaching STEM in Diverse Settings	3	
****EVSC 01.120 Oceans in Crisis	3	
****EVSC 01.101 Planet in Peril	3	
****Any one of the following Astronomy courses: ASTR11.100 Introductory Astronomy: Stars & Galaxies ASTR11.200 Introductory Astronomy: Solar System & Exoplanets ASTR11.120 Introduction to Astronomy (Lecture and Lab) ASTR.11.230 Introductory Astrophysics	3-4	
Add 19 additional free elective courses	19	
TOTAL CREDITS B.A. Geology	**120-121**	

M.A.STEM Coursework 33 Credit Hours

Coursework Sequence:

M.A. STEM Required Core Courses		
Course code	**Course Name**	**s.h.**
*** SMED 60550	Schools & Society: Foundations for Secondary Teaching	3
***STEM 60501	STEM Teaching & Research Methods I	3
***READ 30520	Adolescent Literacies	3
***STEM 60510	Teaching STEM in Diverse Settings	3
SELN 60576	Inclusive Instruction in STEM Classrooms	3
STEM 60504	Professional Seminar for STEM Educators	3
STEM 60512	STEM Clinical Practice I	1
STEM 60513	STEM Clinical Practice II	3
STEM 60524	STEM Clinical Seminar I	1
STEM 60525	STEM Clinical Seminar II	1
M.A. STEM Required Specialized Courses		
STEM 60522	STEM Teaching & Research Methods: Science II	4
STEM 60523	STEM Teaching & Research Methods: Science III	5
TOTAL CREDITS M.A. STEM		**33**

***** Courses required to earn initial NJ certification to teach in the public schools but are not required for the B.A. in Geology***

****** These courses will be double counted (accepted for both degrees)***

******* Any one of these courses will be essential as background for meeting Earth Science Praxis content requirements***

Table 3. List of Pre and Co- requisite courses required for the graduate portion of the STEM Education Accelerated Program B.A. in Geology and M.A. STEM Education

Course Code	Course Name	s.h	Pre requisite courses	Co-requisite courses
STEM 60501	STEM Teaching & Research Methods I	3	Matriculation into M.A. STEM	----------
STEM 60510	Teaching STEM in Diverse Settings	3	Matriculation into M.A. STEM	----------
READ 30520	Adolescent Literacies	3	None	None
SMED 60550	Schools & Society: Foundations for Secondary Teaching	3	None	None
STEM 60522	STEM Teaching & Research Methods II: Science	4	STEM 60501 STEM Teaching & Research Methods I	STEM 60512: STEM: Clinical Practice I STEM 60524: STEM Clinical Seminar I SELN 60576 Inclusive Instruction in STEM Classrooms
STEM 60512:	STEM 60512: STEM: Clinical Practice I	1	STEM 60501 STEM Teaching & Research Methods I	STEM 60522: STEM: Teaching & Research Methods II: Science STEM 60524: STEM Clinical Seminar I SELN 60576 Inclusive Instruction in STEM Classrooms
SELN 60576	Inclusive Instruction in STEM Classrooms	3	STEM 60501 STEM Teaching & Research Methods I	STEM 60522: STEM: Teaching & Research Methods II: Science STEM 60512: STEM Clinical Practice I STEM 60524: STEM Clinical Seminar I
STEM 60513	STEM Clinical Practice II	3	STEM 60512: STEM: Clinical Practice I STEM 60522: STEM Teaching & Research Methods II: Science SELN 60576 Inclusive Instruction in STEM Classrooms	STEM 60523: STEM Teaching & Research Methods: Science III STEM 60525: STEM Clinical Seminar II
STEM 60523	STEM Teaching & Research Methods: Science III	5	STEM 60522: STEM Teaching & Research Methods II: Science	STEM 60513: STEM Clinical Practice II
STEM 60504	Professional Seminar for STEM Educators	3	STEM 60513: STEM Clinical Practice II STEM 60523: STEM Teaching & Research Methods: Science III	None
STEM 60524	STEM Clinical Seminar I	1	STEM 60501 STEM Teaching & Research Methods I	STEM 60522: STEM Teaching & Research Methods: Science II STEM 60512: STEM Clinical Practice I
STEM 60525	STEM Clinical Seminar II	1	STEM 60524: Clinical Seminar I STEM 60512: STEM Clinical Practice II STEM 60522: STEM Teaching & Research Methods II: Science	STEM 60523: STEM Teaching & Research Methods: Science III STEM 60513: STEM Clinical Practice II