# STEM EDUCATION-ACCELERATED PHYSICS & EDUCATION (G845 & C030)

# ACCOMPANYING PROGRAM GUIDE TO MA STEM HANDBOOK FOR BA/BS PHYSICS 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 Physics certification in the STEM -Education Accelerated program, the requirements needed to accomplish a certification in the teaching of Physics. 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 Physics. ***Please note that Table 1 is merely a sample for demonstrative purposes. Choice and sequence of Physics 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 Physics program only with the consent and approval of their science education 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 by the STEM-Education Accelerated undergraduate 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 BA/ BS Physics**

- Meet entry requirements for the BA in Physics Program please see: https://academics.rowan.edu/csm/departments/physics/acad/
- Meet entry requirements for the BS in Physics Program, please see: https://sites.rowan.edu/registrar/_docs/program-guide-physics-bs---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 education courses. Required courses for entry into the MA in STEM Education program may only be attempted twice.
- Submission of Matriculation packet to CADP 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 Physics: Content Knowledge; test code 5266 and General Science Knowledge (5436) by **April 30th deadline prior to entering Clinical Practice I** (Required score: **145 and 141 consecutively**). 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 Physics 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 NJDOE approved summative teacher performance project (iTPA + 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 evidenced by successful completion of STEM 60512 AND 60513
- Successful completion and recommendation for certification from, Rowan University Residency 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 Physics GPA)*** *must* be used in the calculation of the Physics 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 Physics 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/BS Physics 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 BA/BS Physics and MA STEM program. Courses listed are examples of courses that can be taken in Physics 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 (14–15 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 |
| | Computer Programming course (NPC) | 3–4 | Chemistry I I[1] | 4 |
| | MATH 01.130: Calculus 1 | 4 | MATH 01.131: Calculus II (NPC) | 4 |
| | PHYS 00.220: Introductory Mechanics | 4 | PHYS 00.221: Introductory TFW&O | 4 |

| Year 2 | Semester 3 (17 credits) | s.h. | Semester 4 (16–17 credits) | s.h. |
|---|---|---|---|---|
| **Courses that should normally be taken in the sophomore year** | PHYS 00.222: Introductory Electricity & Magnetism | 4 | PHYS 00.300: Modern Physics | 4 |
| | MATH 01.230: Calculus III (NPC) | 4 | PHIL 09.369 :Philosophy of Science (HHL) (recommended) | 3 |
| | CMS 04.205: Public Speaking | 3 | PSY 09.210: Adolescent Development (SBS) | 3 |
| | Chemistry II I[1] | 3 | GE Elective (ACE) | 3 |
| | NPC/RE Elective | 3 | Additional PHYS course *or* ASTR 11.230 | 3–4 |

| Year 3 | Semester 5 (16 credits) | s.h. | Semester 6 (12-13 credits) | s.h. |
|---|---|---|---|---|
| **Courses that should normally be taken in the junior year** | PHYS Elective (300+) | 3-4 | PHYS Elective (300+) | 4-3 |
| | HLTH 00103: Health and Wellness OR a Biology course (NPC) | 3–4 | PHYS Elective | 3 |
| | GE Elective (HHL LIT) | 2-4 | Free Elective | 3 |
| | Free Elective | 3 | Free Elective | 3 |
| | Free Elective | 3 | | |
| | | | **TRANSITION POINT 1** | |

| Year 4 | Semester 7(14 credits) | s.h. | Semester 8 (14 credits) | s.h. |
|---|---|---|---|---|
| **Courses that should normally be taken in the senior year** | PHYS 00.361/362/363: Physics Learning Assistant | 2 | PHYS 00.361/362/363: Physics Learning Assistant | 2 |
| | *SMED 60.550: Schools & Society: Foundations for Secondary Teaching Free Elective | 3 | *STEM 60510: Teaching STEM in Diverse Settings | 3 |
| | *STEM 60501: STEM Teaching & Research Methods I | 3 | Free Elective | 3 |
| | Free Elective | 3 | READ 30520: Adolescent Literacies | 3 |
| | Free Elective | 3 | Free Elective | 3 |
| | | | **TRANSITION POINTS 2 & 3** | |

* **One of the courses taken freshman year must be a Rowan Seminar designated course**.

| 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 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 |
| | SELN 60576: Inclusive Instruction in STEM Classrooms | 3 | **TRANSITION POINT 4** | |

| Year 5 (cont'd) | Semester 11 (3 credits) | s.h |
|---|---|---|
| **Courses that should normally be taken in Master's degree year** | STEM 60504: Professional Seminar for STEM Educators | 3 |

*Indicates courses with field

**For General Education requirements and credits please see:** Academic Programs (rowan.edu) for BA in Physics. 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 Physics are. **Adolescent Development (satisfies SBS) AND Health and Wellness (HLTH 00103) OR a biology course. Prerequisites of Calculus I and Biology 2 are required.**

**Table 2. Sample Coursework Breakdown.**

**B.A. in Physics Course Work: 66 Credits**

| **Physics Major Core Courses: 16 credits** | **Credits** | D |
|---|---|---|
| Introductory Mechanics- RS | 4 | |
| Introductory Thermodynamics, Fluids, Waves and Optics | 4 | |
| Introductory Electricity and Magnesium | 4 | |
| Modern Physics | 4 | |
| **Physics Elective Courses: 14 credits** | | |
| **2 300+ Phys courses | 6-7 | |
| **1 Additional PHYS course *or* ASTR 11.230 | 3-4 | |
| **Physics Learning Assistant for Introductory Mechanics /TFWO/Electricity & Magnetism or 1 additional 300+ PHYS course | 2+2 or 4 | |
| **Restricted Elective Courses: 6 credits** | | |
| ***Schools & Society, Foundations for Secondary Teaching | 3 | |
| ***STEM Teaching and Research Methods I | 3 | |
| **Free Elective Courses: 30 credits** | | |
| Adolescent Literacies | 3 | |
| Teaching STEM in Diverse Settings | 3 | |
| +24 Additional Credits of free electives | 24 | |
| | | |

| **Additional M.A. in STEM Education Required Core Courses** | **Credits** | D |
|---|---|---|
| Inclusive Instruction in STEM Classrooms | 3 | |
| Professional Seminar for STEM Educators | 3 | |
| STEM Clinical Seminar I | 1 | |
| STEM Clinical Seminar II | 1 | |
| STEM Clinical Practice I | 1 | |
| STEM Clinical Practice II | 3 | |
| STEM Teaching & Research Methods: Science II | 4 | |
| STEM Teaching & Research Methods: Science III | 5 | |
| **TOTAL MA STEM CREDITS DURING RESIDENCY YEAR** | **21** | |
| **TOTAL CREDITS MA in STEM EDUCATION** | **33****** | |

**M.A. in STEM Education Coursework during the Residency Year: 22 Credits**

** Must have a fixed total of 14 credits
***These courses are required for the M.A. in STEM-Ed so will be accepted for both degree programs.
**** 21 credits during residency +12 taken during BS program

[1] 15 credits of Chemistry (Chemistry I, Chemistry II, plus 7 additional free elective credits in chemistry are recommended to meet State certification standards in Physical Sciences)