

# BA IN CHEMISTRY + MAT IN ADOLESCENCE ED: CHEMISTRY

## Program Overview

Education Coordinator	Latanya Brandon, (845) 257-3118, <a href="mailto:brandonl@newpaltz.edu">brandonl@newpaltz.edu</a>
Content Coordinator	Preeti Dhar, (845) 257-3797, <a href="mailto:dharp@newpaltz.edu">dharp@newpaltz.edu</a>
Program ID	104C
Credits	122 UG +30 GR
Program Length	The MAT can be completed in one additional year of study if enrolled full-time, but students must complete the degree within 5 years
Modality	In-person
Full-time/Part-time	Full-time or Part-time
Transfer Credits	6
Capstone	Comprehensive Exam and Practicum
Certification/Licensure	NYSED Initial/Professional Adolescent Education: Chemistry

## Program Description

We have developed this program in response to popular demand from students and parents who have called for a pathway to fulfilling jobs in education and science, and to school districts who report an increasing number of full-time job openings in STEM disciplines. Graduation from the Five-Year Master Plan empowers students with options to choose the career they find most fulfilling, whether that means becoming a science teacher, working as a chemist, or pursuing a Ph.D.

### How does it work?

**ENROLL** in the Five-Year Master Plan and begin taking foundational science courses as a first-year student.

**MAINTAIN** a 3.0 GPA as you take embedded education courses and pursue your Bachelor of Arts (BA) degree in Chemistry.

**QUALIFY** for early admission to the graduate program during your junior year.

**EARN** your BA degree in four years, while taking education courses to prepare for your accelerated graduate program.

**COMPLETE** the MAT program, including all student teaching requirements in just one year.

## Admission Requirements

To participate in the BA/MAT program in Chemistry, interested undergraduates should:

1. Submit a Declaration of Major/Change of Major form indicating the BA/MAT program in Chemistry (major 50CH) to the office of Records and Registration (Wooster Hall, rm. 115).

2. Meet with [Professor Latanya Brandon](#) to begin selecting courses. Maintain a GPA of 3.0 to fulfill admission requirements for the graduate program.

### Early Admission to Graduate Program

During their **junior** year, students finalize their early admission to the Master of Arts in Teaching program:

- Apply using the link above.
- Create an account (if new to applying) or log in and follow the steps.
- Select the fall term when you would like to begin your graduate coursework and major code (104C).  
**NOTE:** This program only admits for the fall term.
- Select “BA Chemistry/MAT Adolescence Ed: Chemistry Program” as the intended curriculum.

### Upload Checklist Items

To expedite a faculty review of an application, students may upload the following items:

- Admission Essay
  - Reflect on a time when your idea or belief was questioned or challenged. Or, conversely, reflect on a time when your idea or belief was validated. What happened? In what way(s) could this time be considered a learning experience?

**As you reflect, please include at least one reference to the [School of Education's Conceptual Framework](#) and discuss how it speaks to your experience.**

- Student copies of transcripts\* from every college/university attended.

\* Full admission REQUIRES the submission of official transcripts and test scores.

### Check Your Application Status

- Check your application status through the [applicant portal](#).

## BA in Chemistry

Course	Title	Credits
<b>Year 1</b>		
<b>Fall</b>		
	Education Seminar	1
ENG160	Composition I	3
CHE201	General Chemistry I	3
CHE211	General Chemistry I Lab	1
MAT251	Calculus I	4
	Elementary Foreign Language I	3
<b>Credits</b>		<b>15</b>
<b>Spring</b>		
ENG180	Composition II	3
CHE202	General Chemistry II	3
CHE212	General Chemistry II Lab	1
MAT252	Calculus II	4
SED354	Foundations of Secondary Education Seminar	1
	Elementary Foreign Language II	3
<b>Credits</b>		<b>15</b>

<b>Year 2</b>		
<b>Fall</b>		
PHY201	General Physics 1	3
PHY211	Physics 1 Laboratory	1
CHE318	Organic Chemistry I	3
CHE306	Organic Chemistry I Lab	1
EDS372	Developing Adolescence	3
Arts Course		3
<b>Credits</b>		<b>14</b>

<b>Spring</b>		
EDS340	Sociological and Philosophical Foundations of Education	3
PHY202	General Physics 2	3
PHY212	General Physics 2 Lab	1
CHE319	Organic Chemistry II	3
CHE309	Organic Chemistry II Lab	1
Humanities Course		3
<b>Credits</b>		<b>14</b>

<b>Year 3</b>		
<b>Fall</b>		
CHE314	Inorganic Chemistry	3
CHE303	Introduction to Analytical Chemistry	4
MAT341	Applied Mathematics I	3
Western Civilization Course		3
Upper-division Liberal Arts elective		3
Take GRE exam		
<b>Credits</b>		<b>16</b>

<b>Spring</b>		
CHE321	Physical Chemistry I	3
EDS383	Introduction to Literacy for Diverse Learners	3
BIO201	General Biology I or GLG201 or Physical Geology	3
BIO211	Gen Bio 1 Lab or GLG211 or Physical Geology Laboratory	1
Other World Course		3
Upper-division Liberal Arts elective		3
Apply for early admission to the MAT		
<b>Credits</b>		<b>16</b>

<b>Year 4</b>		
<b>Fall</b>		
BIO201	General Biology I or GLG201 or Physical Geology	3
BIO211	Gen Bio 1 Lab or GLG211 or Physical Geology Laboratory	1
CHE323	Experimental Physical Chemistry	3
CHE322	Physical Chemistry II	3
Upper-division Liberal Arts or other elective		3
Graduate Education or Chemistry Liberal Arts elective		3
<b>Credits</b>		<b>16</b>

<b>Spring</b>		
BCM461	Biochemistry 1	3
SED453	Curriculum and Assessment in the Secondary School	3

SED353	Field Work #1	1
SED356	Teaching and Learning in the Digital Environment	3
Integrating ELLs in the School & Classroom		3
Graduate Education or Chemistry Liberal Arts elective		3
<b>Credits</b>		<b>16</b>
<b>Total Credits</b>		<b>122</b>

## MAT in Adolescence Education: Chemistry

Code	Title	Credits
<b>Summer (3 Credits)</b>		
Select ONE of the following if offered: Discipline-specific education course, an approved Diversity elective, or a course in discipline		3
<b>Fall (13 Credits)</b>		
SED543	Science in the Secondary School	3
SED552	Field Experience II	1
SPE565	Teaching in Inclusive Classrooms	3
Select TWO of the following courses not taken during summer: Discipline-specific education course, approved Diversity elective, or a course in discipline		6
<b>Spring (14 Credits)</b>		
SED604	Practicum in Secondary Ed 7-9	6
SED605	Practicum in Secondary Ed 10-12	6
SED606	Practicum Seminar	1
SED553	Field Experience III	1
<b>Total Credits</b>		<b>30</b>

### Academic Standing Requirements for Bachelor's/Master's Students

A cumulative GPA of less than 3.0 in graduate-level courses taken in the undergraduate portion of a 4+1 program precludes the student's good standing. Students with GPA of 2.75 to 2.99 strongly advised to reconsider continuing into GR program. Students below 2.75 may not continue and will be de-matriculated from GR program.

## Undergraduate Program Learning Outcomes

### BA Chemistry

Program goals for students graduating with a degree in chemistry

- Develop a qualitative understanding of both atomic and molecular structure including shell structure, chemical bonding and the shapes of molecules.
- Understand trends in the periodic table such as size and reactivity.
- Obtain knowledge of the concepts of quantitative chemical analysis and its relationship to experimental measurements and be able to analyze the associated experimental error from each measurement.
- Derive mathematical relationships that are used to explain the chemical and physical processes of both macroscopic and molecular systems.
- Gain some understanding of the chemical and physical properties of biomolecules.

- Extend and apply knowledge learned from courses in chemistry to areas outside of the field.
- Obtain experience in research in chemistry by working with a faculty mentor.
- Obtain experience in and knowledge of modern chemical instrumentation and laboratory techniques.
- Perform experiments following standard and more open-ended protocols.
- Be able to search and interpret articles from scientific journals.
- Become proficient at writing scientific reports and/or providing oral presentations based on experimental results and/or scientific subjects.

## Graduate Program Learning Outcomes

### MAT Adolescence Education: Chemistry

Candidates who successfully complete all required components of the MAT Adolescence Chemistry program at SUNY New Paltz will:

- **Content Knowledge:** Enhance content area through synthesizing scientific conceptual understandings with pedagogical practice and implementation.
- **Planning:** Be able to plan lessons in science that are NYSP-12SLS standards-based, are clear and organized, rely upon a variety of appropriate pedagogical practices, include appropriate technologies, and differentiate instruction that provides opportunities to promote appreciation of diversity, tolerance, and inclusion in safe, democratic, and equitable learning environments.
- **Assessment and P-12 Learning:** Be able to choose, design, and implement authentic and appropriate formative and summative assessments to evaluate student learning, consider assessment data when making instructional decisions, and identify effective or problematic teaching moments as they are occurring in order to facilitate student growth in specified content, cognitive skills, and/or social skills.
- **Pedagogical Practice:** Demonstrate the ability to maximize student learning by incorporating content with pedagogical knowledge, utilizing appropriate and effective technology, and implementing a variety of developmentally and contextually appropriate evidence-based instructional strategies to make learning meaningful and relevant for students while teaching.
- **Dispositions:** Exhibit the knowledge, skills, and dispositions necessary to practice an ethically informed and self-reflective philosophy, participate effectively in institutional change, and develop respectful relationships with students, families, communities and colleagues.
- **Critical Thinking and Reasoning:** Clearly articulate an issue or problem; identify, analyze, and evaluate ideas, data, and arguments as they engage in planning, assessing, and teaching; and acknowledge limitations such as perspective and bias as they develop well-reasoned arguments to form judgements and/or draw conclusions that support pedagogical decisions.

reasoned arguments to form judgements and/or draw conclusions that support pedagogical decisions.

- **Information Literacy:** Locate appropriate resources effectively using appropriate tools; evaluate information with an awareness of authority, validity, and bias; and demonstrate an understanding of the ethical dimensions of information use, creation, and dissemination as they relate to the field of education.

### Adolescence Education Chemistry (MSEd)

Candidates who successfully complete all required components of the Adolescence Chemistry program at SUNY New Paltz will:

- **Content Knowledge:** Enhance content area through synthesizing scientific conceptual understandings with pedagogical practice and implementation.
- **Planning:** Be able to plan lessons in science that are NYSP-12SLS standards-based, are clear and organized, rely upon a variety of appropriate pedagogical practices, include appropriate technologies, and differentiate instruction that provides opportunities to promote appreciation of diversity, tolerance, and inclusion in safe, democratic, and equitable learning environments.
- **Assessment and P-12 Learning:** Be able to choose, design, and implement authentic and appropriate formative and summative assessments to evaluate student learning, consider assessment data when making instructional decisions, and identify effective or problematic teaching moments as they are occurring in order to facilitate student growth in specified content, cognitive skills, and/or social skills.
- **Pedagogical Practice:** Demonstrate the ability to maximize student learning by incorporating content with pedagogical knowledge, utilizing appropriate and effective technology, and implementing a variety of developmentally and contextually appropriate evidence-based instructional strategies to make learning meaningful and relevant for students while teaching.
- **Dispositions:** Exhibit the knowledge, skills, and dispositions necessary to practice an ethically informed and self-reflective philosophy, participate effectively in institutional change, and develop respectful relationships with students, families, communities and colleagues.
- **Critical Thinking and Reasoning:** Clearly articulate an issue or problem; identify, analyze, and evaluate ideas, data, and arguments as they engage in planning, assessing, and teaching; and acknowledge limitations such as perspective and bias as they develop well-reasoned arguments to form judgements and/or draw conclusions that support pedagogical decisions.
- **Information Literacy:** Locate appropriate resources effectively using appropriate tools; evaluate information with an awareness of authority, validity, and bias; and demonstrate an understanding of the ethical dimensions of information use, creation, and dissemination as they relate to the field of education.