BS IN MATHEMATICS + MAT IN ADOLESCENCE ED: MATHEMATICS

Program Overview

Education Coordinator  Jason Huang, (845) 257-2818, huangj18@newpaltz.edu
Program Coordinator  David Hobby, (845) 257-3563, hobbyd@newpaltz.edu
Program ID  107C
Credits  120-123 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  Practicum
License/Certification  NYSED Initial/Professional Adolescent Education: Mathematics

Program Description

We’ve developed this program in response to popular demand from students and parents who have called for a pathway to fulfilling jobs in education and mathematics, 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 math teacher, working as a mathematician, or pursuing a Ph.D.

How does it work?

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

**MAINTAIN** a 3.0 GPA as you take embedded education courses and pursue your Bachelor of Science (BS) degree in Mathematics.

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

**EARN** your BS 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

1. Meet with your Advisor to review the BS/MAT program requirements.
2. Submit a Declaration of Major/Change of Major form indicating the BS/MAT program in Mathematics (major 512M) to the office of Records and Registration (Wooster Hall, rm. 115).
3. Meet with Professor Huang 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:

- Click this [link](#) to access our new application system.
- Create an account (if you are new to this system) and follow the steps to apply for the fall term.
- Select the fall term when you would like to begin your graduate coursework and major code (107C).

**NOTE:** This program only admits for the fall term.
- Select “BS Mathematics/MAT Adolescence Ed: Mathematics Program” as the intended curriculum.

Upload Checklist Items

To expedite a faculty review of a graduate 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 via the applicant portal.

BS in Mathematics (major 512M)

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>Year 1</td>
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<tr>
<td>Fall</td>
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<tr>
<td>ENG170</td>
<td>Writing and Rhetoric</td>
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<tr>
<td>MAT251</td>
<td>Calculus I</td>
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<tr>
<td>Gen Ed: Foreign Language (FL)</td>
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<td>Gen Ed: The Arts (AR)</td>
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<td>Gen Ed: World Civilization (OW)</td>
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<td><strong>Credits</strong></td>
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<tr>
<td>Spring</td>
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<tr>
<td>MAT252</td>
<td>Calculus II</td>
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<tr>
<td>MAT260</td>
<td>Introduction to Proof</td>
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<td>Gen Ed: Humanities (H)</td>
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<td>Gen Ed: Foreign Lang (FL)</td>
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<tr>
<td>MAT353</td>
<td>Calculus III</td>
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<td>MAT359</td>
<td>Ordinary Differential Equations</td>
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<td>PHY201</td>
<td>General Physics 1</td>
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<td>PHY211</td>
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<tr>
<td>EDS340</td>
<td>Sociological and Philosophical Foundations of Education (or Gen Ed: United States Studies (USST))</td>
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**Year 3**

**Fall**

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<tr>
<th>MAT304</th>
<th>Foundations of Algebra</th>
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<tr>
<td>MAT381</td>
<td>Probability and Statistics I</td>
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Math Elective (300-400 level) 3

Graduate Math elective (500-700 level) 3

SED540  Graduate Foundations of Adolescence Education Seminar 1

SED525  Digital Literacies and Learning in Secondary Education 1

SPE565  Teaching in Inclusive Classrooms 3

**Credits** 14

**Spring**

| SED493 | Integrating English Language Learners in the School & Classroom | 3 |

Upper-division electives 6

Graduate Math elective (500-700 level) 3

SED703  Curriculum: Designs for Literacy, Learning, and Assessment in Adolescence Education 3

SED551  Field Experience I 1 1

**Credits** 16

**Total Credits** 120-123

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<tr>
<th>Course</th>
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<td>EDS539</td>
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<tr>
<td>EDS730</td>
<td>Adolescent Development</td>
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<td>SED545</td>
<td>Mathematics in the Secondary School</td>
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<td>SED552</td>
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Graduate Math Elective (500-700 level) 3

Select a Diversity Course from the options below: 3

SED537  Issues in Multicultural Education 3

SED541  Humanistic/Multicultural Approaches to Education and Human Services 3

SED548  Multicultural Approaches to Helping 3

SED581  Issues of Racism and Sexism in Education 3

**Credits** 16

**Spring**

<table>
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<tr>
<th>SED604</th>
<th>Practicum in Secondary Ed 7-9</th>
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<td>SED605</td>
<td>Practicum in Secondary Ed 10-12</td>
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<td>SED606</td>
<td>Practicum Seminar</td>
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<td>SED553</td>
<td>Field Experience III 2</td>
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**Credits** 14

**Total Credits** 30

1 Includes 35 hours of fieldwork.
2 Includes 30 hours of fieldwork.
3 Students who completed EDS340 and/or EDS372 may substitute graduate education courses, by advisement

**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, BS Mathematics

The set of learning objectives for the mathematics major (512), the mathematics adolescent education (446) major, and the mathematics elementary education concentration (601M) are:

1. **Computation**: Students can reliably perform numeric and symbolic computations.

2. **Representation**: Students can construct and apply standard symbolic and graphical representations of mathematical objects.

3. **Estimation**: Students are able to estimate, approximate, and check results for reasonableness.

4. **Modeling**: Students can construct appropriate mathematical models for real-world problems.

5. **Communication**: Students are proficient at oral and written communication of mathematical content.

6. **Comprehension**: Students are able to read and comprehend a mathematical argument, identifying any flaws in its reasoning.

7. **Definitions**: Students can state and apply mathematical definitions and theorems.

8. **Proving**: Students are able to write formal mathematical proofs.

9. **Hypothesizing**: Students are able to use abstraction and generalization to make, test, and revise mathematical hypotheses.

10. **Novelty**: Students can apply their mathematical knowledge to a novel situation.

11. **Independence**: Students are proficient at thinking independently and creatively.

12. **Breadth**: Students are able to use techniques from a number of different fields of mathematics.

13. **Additional Objectives for Math Adolescence Ed:**

   - **A) Mastery**: Students have mastered the mathematics usually taught in high school.
   
   - **B) Technology**: Students are able to easily use new instructional technologies.

14. **Additional Objectives for Math Elementary Ed:**

   - **A) Mastery**: Students have mastered the mathematics usually taught in elementary school.
   
   - **B) Technology**: Students are able to easily use new instructional technologies.

Graduate Program Learning Objectives

Adolescence Education Mathematics (MAT)

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

- **Content Knowledge**: Enhance content area through synthesizing mathematical conceptual understandings with pedagogical practice and implementation.

- **Planning**: Be able to plan lessons in math that are NCTM 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.

Adolescence Education Mathematics (MSEd)

Candidates who successfully complete all required components of the Adolescence Math 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 math that are NCTM 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.