Teaching, with Teacher Certification in Chemistry (Preschool-Grade 12) (M.A.T.)

Students with a baccalaureate degree and interest in teaching may pursue the Post-BA program for certification only or the Master of Arts in Teaching (MAT) which simultaneously leads to certification and Master’s Degree. The content area program is open to students who wish to teach one of the following content areas in K-12 schools:

- Art
- Biology
- Chemistry
- Earth Science
- English
- French
- Health & Physical Education
- Mathematics
- Music
- Physical Education
- Physical Science
- Social Studies
- Spanish
- Teacher of English as a Second Language

Montclair State University’s Teacher Education Program is one of the most highly-regarded teacher preparation programs in the country. It has been consistently recognized both nationally and regionally for its unique features, including its structure, partnerships, and curricular emphases. The program is considered a model for other colleges and universities and has continuously been accredited by the National Council for the Accreditation of Teacher Education (NCATE) since 1954.

The Teacher Education Program’s professional course sequence and field experiences emphasize teaching for critical thinking and culturally responsive teaching. The professional component for both graduate students addresses four broad areas:

1. student development and learning,
2. the classroom and the school,
3. the curriculum, and
4. effective teaching skills.

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Additional Requirements for State Certification</td>
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<tr>
<td></td>
<td>Speech</td>
<td>3</td>
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<tr>
<td>CMST 101</td>
<td>Fundamentals of Speech: Communication Requirement</td>
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<tr>
<td></td>
<td>Physiology and Hygiene</td>
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<tr>
<td></td>
<td>Pass the MSU Health Knowledge Test available through the COP or have UG equivalent course approved by advisor.</td>
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</tr>
<tr>
<td></td>
<td>Educational Psychology</td>
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</tbody>
</table>

EDFD 582  Learning Theories  3
or PSYC 560  Advanced Educational Psychology

Program Requirements

Graduate Professional Sequence

Introductory Sequence

EDFD 505  Teaching, Democracy, and Schooling  3
or SASE 505  Teaching, Democracy, and Schooling

SASE 518  Technology Integration in the Classroom  1

Diversity and Instructional Sequence

EDFD 509  Sociocultural Perspectives of Teaching  3
or SASE 509  Sociocultural Perspectives on Teaching and Learning

EDFD 516  Meeting the Needs of English Language Learners  1
or SASE 516  Meeting the Needs of English Language Learners

SASE 517  Inclusive Classrooms in Middle and Secondary Schools  1

READ 501  Techniques of Reading Improvement in the Secondary School  3

EDFD 519  Assessment for Authentic Learning  3
or SASE 519  Assessment for Authentic Learning

Pedagogical Sequence I

SASE 526  Teaching for Learning I  3
SASE 527  Fieldwork  3

Pedagogical Sequence II

SASE 514  Inservice Supervised Graduate Student Teaching  4-8
or SASE 529  Student Teaching

SASE 543  Teaching for Learning II  3

Comprehensive Examination

In the term that you will sit for exam, register for the section which matches your major & advisor. Successfully pass exam.

GRAD CMP  Comprehensive Examination  0

Total Credits  36

1 May be completed by examination.
2 SASE 514 is for in-service teachers.

Teaching Field Requirements

Chemistry Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 120</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td>CHEM 121</td>
<td>General Chemistry II</td>
<td>4</td>
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<tr>
<td>CHEM 230</td>
<td>Organic Chemistry I</td>
<td>3</td>
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<tr>
<td>CHEM 231</td>
<td>Organic Chemistry II</td>
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<tr>
<td>CHEM 232</td>
<td>Experimental Organic Chemistry I</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 233</td>
<td>Experimental Organic Chemistry II</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 310</td>
<td>Analytical Chemistry</td>
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<tr>
<td>CHEM 311</td>
<td>Instrumental Analysis</td>
<td>4</td>
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<tr>
<td>CHEM 340</td>
<td>Physical Chemistry I</td>
<td>3</td>
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<tr>
<td>CHEM 341</td>
<td>Physical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 370</td>
<td>Biochemistry I</td>
<td>3</td>
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<tr>
<td>CHEM 501</td>
<td>Teaching Chemistry in the Secondary School</td>
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Collateral Mathematics Courses

<table>
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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>MATH 122</td>
<td>Calculus I</td>
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<tr>
<td>MATH 221</td>
<td>Calculus II</td>
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Collateral Physics Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
</table>

1. May be completed by examination.
2. SASE 514 is for in-service teachers.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHYS 191</td>
<td>University Physics I</td>
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</tr>
<tr>
<td>PHYS 192</td>
<td>University Physics II</td>
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**Chemistry Elective**

Select one of the following with advisor approval: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>CHEM 510</td>
<td>Hazardous Materials Management</td>
</tr>
<tr>
<td>CHEM 520</td>
<td>Advanced Inorganic Chemistry</td>
</tr>
<tr>
<td>CHEM 525</td>
<td>Bioinorganic Chemistry</td>
</tr>
<tr>
<td>CHEM 530</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>CHEM 532</td>
<td>Organic Synthesis</td>
</tr>
<tr>
<td>CHEM 533</td>
<td>Biosynthesis of Natural Products</td>
</tr>
<tr>
<td>CHEM 534</td>
<td>Separation and Analysis</td>
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<tr>
<td>CHEM 536</td>
<td>Nuclear Magnetic Resonance: Theory and Practice</td>
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<tr>
<td>CHEM 538</td>
<td>Drug Design in Medicinal Chemistry</td>
</tr>
<tr>
<td>CHEM 540</td>
<td>Advanced Physical Chemistry</td>
</tr>
<tr>
<td>CHEM 542</td>
<td>Quantum Chemistry and Spectroscopy</td>
</tr>
<tr>
<td>CHEM 544</td>
<td>Chemical Thermodynamics and Electrochemistry</td>
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<td>CHEM 546</td>
<td>Chemical Spectroscopy</td>
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<tr>
<td>CHEM 548</td>
<td>Chemical Kinetics</td>
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<td>CHEM 550</td>
<td>Organometallic Chemistry</td>
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<tr>
<td>CHEM 570</td>
<td>Advanced Biochemistry</td>
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<tr>
<td>CHEM 574</td>
<td>Protein Structure</td>
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<td>CHEM 575</td>
<td>Enzyme Kinetics and Mechanisms</td>
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<td>CHEM 576</td>
<td>Lipid Biochemistry</td>
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<tr>
<td>CHEM 577</td>
<td>Nucleic Acid Biochemistry</td>
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<td>CHEM 578</td>
<td>Biochemistry Laboratory Techniques</td>
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<td>CHEM 579</td>
<td>Biomolecular Assay Development</td>
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<td>CHEM 582</td>
<td>Biochemical Pharmacology</td>
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<td>CHEM 590</td>
<td>Selected Topics-Advanced Chemistry</td>
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<td>CHEM 595</td>
<td>Graduate Research</td>
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<td>CHEM 599</td>
<td>Graduate Seminar</td>
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</tbody>
</table>

**Total Credits** 58

1. May be completed by examination.
2. SASE 514 is for in-service teachers.