

What kind of science teacher do we prepare?

At the Warner School, we do not just prepare teachers to survive in today's schools; our graduates are reflective practitioners who are committed to social justice, equity and school reform. To this end, we strive to prepare science teachers who:

- Understand that learning science is more than just memorizing facts and procedures.
- Are familiar with best practices and curricula for teaching science.
- Can make science meaningful and relevant to students.
- Are committed to enable *all* students to learn science.

Based on research about how people learn and what is most effective in preparing teachers, we have designed our programs to:

- Deepen your understanding of science while learning about innovative and effective methods to teach science.
- Help you develop an approach to teaching science that is grounded in knowledge of the research, theory, issues and trends influencing science education.
- Encourage you to integrate theory and practice, as well as content and pedagogy.
- Raise your awareness about students' differences and individual needs, and develop strategies to address them equitably in your teaching.
- Learn how to construct classroom environments that promote social justice and equity.
- Develop the habits of a reflective practitioner, so that professional growth and improvement continues after completion of the program.

What are the pre-requisites for entering our science teacher preparation programs?

New York State Education Department (NYSED) requires all those seeking Initial Teaching Certification to have completed a Bachelor's degree with a major or concentration in one or more of the liberal arts and sciences, and including at least two courses in a language other than English (unless proficiency can be otherwise proved). In addition, NYSED requires specialists in Biology, Chemistry, Physics or Earth Science to have completed a minimum of 30 credit hours of coursework (at either the undergraduate or graduate level) in science, with at least 18 credits in the science of specialization.

We expect students entering our teacher preparation programs to have already fulfilled all of these requirements. If this is not the case, in some exceptional case you may be allowed to enter our programs at the discretion of your advisor; you will, however, have to take the needed coursework before the end of the program in order to be recommended for certification to the New York State Education Department.

Some statistics about job opportunities in teaching

Teachers held about 3.4 million jobs in 1998. Of those, about 1.9 million were kindergarten and elementary school teachers, 1.4 million were secondary teachers, and about half a million were special education teachers. Employment is distributed geographically, much the same as the population.

Overall employment of teachers is expected to increase about as fast as the national average through the year 2008. The expected retirement of a large number of teachers should open up many additional jobs.

The job market for teachers varies widely by geographic area. Many inner cities that struggle with higher than average crime and poverty rates and rural areas in remote locations have difficulty attracting teachers, so job prospects will continue to be better in these areas than in suburban districts. Also, teachers who are geographically mobile and who obtain licensure in more than one subject should have an advantage in finding employment.

Median annual earnings of all teachers ranged from \$33,590 to \$37,890 in 1998. The lowest 10 percent ranged from \$19,710 to \$24,390; the top 10 percent from \$53,720 to \$70,030.

What do you need to become a teacher in New York State?

The NYSED has just changed its requirements for teacher certification at all levels. All Warner teacher preparation programs have been adapted to meet these new requirements and have been officially approved by the NYSED.

According to the new regulation, in order to begin your teaching career in New York State, you need first of all to obtain an *Initial Teaching Certification* in your area, which requires:

- A B.A. or B.S. with a liberal art major from an accredited institution.
- At least 30 credits in the subject matter of certification (for specialists).
- Two college-level courses in another language (or otherwise demonstrated proficiency in a language other than English).
- Completion of an accredited teacher preparation program (like ours).
- Completion of a series of workshops mandated by NYSED.
- Completion of a series of New York State (NYS) Teacher Examinations.

To continue in your teaching career, however, you will eventually need to obtain a *Professional Teaching Certification*, which requires:

- A Master's degree meeting certain requirements set by NYSED (to be obtained within 3 years from the award of the Initial Certification).
- Additional NYS Teacher Examinations.
- Three years of teaching experience (of which the first year should be mentored).

Because our teacher preparation programs are all offered within a Master's degree program that meets NYSED requirements for professional certification, once you have completed your program you will not only obtain an Initial Teaching Certification that enables you to be employed in public schools, but you will also have completed all the needed *academic* requirements to obtain Professional Teaching Certification.

Different initial and professional certifications are granted to teach at various grade levels:

- *Early Childhood (EC)*: birth to grade 2
- *Childhood (CH)*: grades 1-6
- *Middle Childhood (MC)*: grades 5-9
- *Adolescence (AF)*: grades 7-12

While the first two levels of certification are for generalists that teach all subjects, certifications in Middle Childhood and Adolescence are for specialists in various subject matters. (NOTE: Although NYSED also has teacher certification for generalists in Middle Childhood, we have chosen NOT to offer programs leading to this teacher certification at Warner).

In addition to the above options for certification, NYS has also teaching certifications in a number of specialized areas. At Warner, we offer programs that lead to the following certifications:

- *Teaching Students with Disabilities* (at each of the previous grade levels) (*only as a second certification*) – for those interested in teaching in special education and inclusive settings
- *Teaching Literacy* (birth-grade 6 OR grades 5-12) (*only as a second certification*)
- *Teaching English to Students of Other Languages* (grades K-12)

It is possible to pursue and hold teaching certifications in more than one area or grade level

What are your options for becoming a science teacher at Warner?

At what grade levels do you want to teach?

At the Warner School, we have programs that enable you to obtain NYS Certification to teach Biology, Chemistry, Physics or Earth Science at one of the following grade levels:

- **Grades 5-9** (*NYS certification in Middle Childhood – MC*)
- **Grades 7-12** (*NYS certification in Adolescence -- AD*)
- **Grades 5-12** (*NYS certification in Middle Childhood AND Adolescence – MC+AD*)

What route do you want to take?

You can also choose between the following options:

- **BASIC program:** This is the fastest way to meet NYS requirements for teaching certification at each available grade level, and it can be completed in just 15 months full-time.
- **Inclusion/DUAL certification program:** By adding just 4 courses to our “basic program”, you can obtain a NYS certificate to Teach Students with Disabilities in addition to your basic certificate. This dual certification program enables you to teach in a variety of regular, inclusive and special education settings and to better serve the needs of ALL the students in your class. It can be completed in two years of full-time study.
- **M.A.T. (Master of Arts in Teaching) program** (*available only for grades 7-12*): If you are interested in strengthening your background in Science while obtaining your basic NYS certification, you may want to consider our MAT option. In addition to the same requirements as our “basic program”, MAT students take 12 credits of graduate coursework from the Science department in The College. The program can be completed in two years of full-time study.

What extensions are possible?

If you are interested in further extending your area of certification AFTER graduation, we have a number of non-degree programs you can pursue part-time while holding a teaching job, which lead to NYS certification or extension for:

- **Teaching the same science grades 5-6** (*for teachers with certification in grades 7-12*) (6 credits)
- **Teaching the same science in grades 7-12** (*for teachers with certification in grades 5-9*) (5 credits)
- **Teaching students with disabilities** (*at same grade level*) (12-17 credits)
- **Teaching another science or subject matter** (*number of credits will depend on subject chosen and your background in it*)

What do our programs to prepare science teachers look like?

Basic program (39 credits for MC or AD; 42 credits for MC + AD):

1. ***Pedagogical core:*** 4 courses developing an understanding of teaching, schooling, and diversity:
 - Teaching, Curriculum & Change
 - Topics in Teaching & Schooling
 - Race, Class, Gender & Disability in American Education
 - Disability and Schools
2. ***Literacy:*** 2 courses focusing on understanding and enhancing literacy skills and ability to learn through literacy:
 - Literacy Learning as Social Practice
 - **MC:** Theory & Practice in Teaching & Learning Literacy in Elementary School
AD: Integrating Science & Literacy OR: Language & Literacy in Education
MC+AD: Theory & Practice in Teaching & Learning Literacy in El. School
3. ***Specialization:*** 4 courses about human development and the learning and teaching of Science:
 - Adolescent Development and Youth Culture
 - Theory & Practice in Teaching & Learning Science
 - Implementing Innovation in Science Education
 - **MC:** Theory & Practice in Teaching & Learning Science in Elem. School
AD: Integrating Science & Technology
MC+AD: Theory & Practice in Teaching & Learning Science in El. School AND Integrating Science & Technology
4. ***Internships:*** Apprenticeship experiences in school settings that occur concurrent with some specialization courses:
 - Field Experiences (>100 hours, part-time in Fall)
 - Two student teaching experiences (full-time in Spring)

Inclusion/ Dual certification program (51-57 credits): Same as basic program (with internships conducted in inclusive settings) + 4 courses in disability and inclusion

M.A.T. program (51 credits): Same as basic program for AD + 4 graduate courses in the science you are specializing in (i.e., biology, chemistry, physics or earth science)

Possible extensions AFTER graduation:

(can all be completed in 1-2 years of part-time study, even if you are holding a full-time teaching job)

1. ***Teaching Students with Disabilities in Middle Childhood/ Adolescence***
-- if you are interested in teaching in special education/inclusive settings and/or learn how to serve better the needs of ALL students
(4 courses in inclusion + internships if necessary – 12-17 credits)
 - Assessment in Instructional Contexts
 - Teaching & Learning in Inclusive Classrooms
 - Collaborative teaching Partnerships in Inclusive Classrooms
 - Instructional Strategies for Inclusive Classrooms
 - Field experiences and/or student teaching in inclusive settings (if needed)

2. ***Extension to grades 5-6*** – if you have certification in Adolescence but would like to teach the same science also in grades 5-6
(2 courses – 6 credits)
 - Theory & Practice in Teaching & Learning Science in Elementary School
 - Collaborative teaching Partnerships in Inclusive Classrooms OR Theory & Practice in Teaching & Learning Literacy in Elementary School

3. ***Adolescence – grades 7-12*** – If you have certification in Middle Childhood and you are interested in teaching also grades 10-12
(1 technology courses + field experience – 5 credits)
 - Integrating Science & Technology
 - Field Experiences (grades 10-12)

4. ***Specialization in another science at the same grade levels***
(field experience + whatever necessary to get 30 credits in subject matter – 2 credits at Warner)
 - Field Experiences

5. ***Specialization in a different subject matter for same grade level(s)***
(3-4 methods courses + field experience + whatever necessary to get 30 credits in subject matter – 11-14 credits at Warner)
 - Theory & Practice in Teaching & Learning X
 - Implementing Innovation in X Education
 - Theory & Practice in Teaching & Learning X in Elementary School (for MC) OR Integrating X & Technology (for AD) *(both courses for MC + AD)*
 - Field Experiences

What else would you need in order to obtain NYS certification?

You need to be a NYS permanent resident to obtain any certification from NYS.

Additional requirements for Initial Teaching Certification

In addition to the coursework and experiences that you will undertake in your program (as described in the previous pages), you will also need to meet the following requirements established by NYSED for all those seeking an Initial Teaching Certification:

- Attendance to the NYS-approved workshops on Child Abuse and School Violence Prevention & Intervention (both workshops will be offered as part of our “Topics in Teaching and Schooling” course, but if for any reason you miss them you will have to make arrangements for meeting this requirement independently)
- Passing each of the following NYS Teacher Examinations:
 - LAST (Liberal Arts and Science Test)
 - ATS-W (Assessment of Teaching Skills—written)
 - CST (Content Specialty Test) (*expected to be in place starting Fall 2003*)
- Fingerprint-supported background check

Additional requirements for Professional Teaching Certification

Once you have completed any of our teacher preparation programs, you will also have satisfied all the *academic* requirements established by NYSED for those seeking Professional Teaching Certification. In addition, however, you will also need to satisfy the following requirements:

- Passing each of the following NYS Teacher Examinations:
 - ATS-P Video (Assessment of Teaching Skills—Performance)
 - CST (Content Specialty Test) (*expected to be in place starting Fall 2003*)
- Having completed a minimum of 3 years of teaching experience, with the first one conducted in a mentored situation.

How can undergraduates get a “jump-start” in the program?

At the Warner School, we offer teacher preparation programs only at the graduate level. However, if you are an undergraduate student and you are interested in becoming a science teacher you have the opportunity to get a “jump-start” in a Warner graduate teacher preparation program.

First of all, you can make sure that, as part of your undergraduate program, you complete the required 30 credit hours of coursework in the science you want to teach and two courses in a language other than English.

In addition, if you are a junior or a senior, you are welcome to enroll in some of the courses that are part of our teacher preparation program. The most appropriate courses for those interested in becoming science teachers are:

- Literacy Learning as Social Practice (*Summer, Fall*)
- Teaching, Curriculum & Change (*Summer, Fall, Spring*)
- Race, Class, Gender & Disability in American Education (*Summer, Spring*)
- Disability and Schools (*Summer, Fall*)
- Adolescent Development and Youth Culture (*Summer, Fall*)
- Theory and Practice in the Teaching and Learning of Science (to be taken concurrently with “Field Experiences”) (*Fall*)

Having taken some of these courses prior to admission to our graduate teacher preparation program has a number of advantages:

- It can provide you with a “taste” of what our program can offer.
- It will enable you to transfer those courses, up to a maximum of four, into your teacher preparation program upon matriculation -- *provided you took them beyond the minimum number of credits required for obtaining your Bachelor degree.* Otherwise, it will provide you with room for electives of your choice once you enter our graduate teacher preparation program.

Information about our admission process and criteria

As part of your application, you are asked to submit a portfolio containing the following information:

- Original transcripts from all the higher education institutions attended.
- Writing sample (scholarly paper).
- Personal statement about their career goals, interests, and objectives in entering the program.
- At least 2 letters of recommendation.
- TOEFL scores for international applicants who are not native English speakers.

In addition, you have to schedule an individual interview with a Warner School faculty member affiliated with the teacher preparation program you have applied to. The faculty member completes an interview report that is then added to your application file.

All of these materials are then reviewed by the entire faculty in the Teaching and Curriculum department, and then by the Admission and Financial Aid Committee of the Warner School, taking into consideration the following admission criteria:

1. Applicants must have received a Bachelor's degree from an accredited institution or equivalent by the time they enter the program.
2. Applicants must have the ability to do graduate work at the University of Rochester, as demonstrated by their past academic performance and their academic writing skills.
3. Applicants must have sufficient knowledge of the subject matters they intend to teach, appropriate to the specialization and grade level of the certification(s) sought.
4. Applicants must demonstrate sufficient communication and interpersonal skills to serve students well in an instructional setting.
5. Applicants' career goals, teaching interests, academic background, attitudes and teaching philosophy must be consistent with the programs offered by the Warner School and its stated mission.

When admitted into the program, you will be assigned an academic advisor, who will support and monitor your progress throughout the program. You will also be expected to attend an orientation meeting intended to help you finalize your program of study.

Summary of options for science teachers:

<u>Age level</u>	<i>Middle Childhood (MC)</i>	<i>Adolescence (AD)</i>	<i>Middle Childhood + Adolescence (MC+AD)</i>
Type of program:	<i>Teaching the chosen science in grades 5-9</i>	<i>Teaching the chosen science in grades 7-12</i>	<i>Teaching the chosen science in grades 5-12</i>
“BASIC” Meets academic requirements for NYS certification (regular settings) in minimum amount of time.	M.S. degree leading to NYS Initial + Professional Certification in Middle Childhood (grades 5-9) as specialist in the chosen science PROGRAM (a) <i>39 credits</i> <i>15 months (full-time)</i>	M.S. degree leading to NYS Initial + Professional Certification in Adolescence (grades 7-12) as specialist in the chosen science PROGRAM (c) <i>39 credits</i> <i>15 months (full-time)</i>	M.S. degree leading to NYS Initial + Professional Certification in Middle Childhood (grades 5-9) AND NYS Initial + Professional Certification in Adolescence (grades 7-12) as specialist in the chosen science PROGRAM (f) <i>42 credits</i> <i>15 months (full-time)</i>
MAT option Meets academic requirements for NYS certification (regular settings) while strengthening background in subject matter.		M.A.T. degree leading to NYS Initial + Professional Certification in Adolescence (grades 7-12) as specialist in the chosen science PROGRAM (d) <i>51 credits</i> <i>2 years (full-time)</i>	
DUAL CERTIFICATION Meets academic requirements for NYS certification to teach in both regular and special education settings; strengthens teachers’ skills to serve needs of ALL students’ in any setting.	M.S. degree leading to NYS Initial + Professional Certification in Middle Childhood (grades 5-9) AND NYS Initial + Professional Certification for Teaching Students with Disabilities in Middle Childhood (grades 5-9) as specialist in the chosen science PROGRAM (b) <i>51 credits</i> <i>2 years (1 part-time, 1 full-time)</i>	M.S. degree leading to NYS Initial + Professional Certification in Adolescence (grades 7-12) AND NYS Initial + Professional Certification for Teaching Students with Disabilities in Adolescence (grades 7-12) as specialist in the chosen science PROGRAM (e) <i>51 credits</i> <i>2 years (1 part-time, 1 full-time)</i>	M.S. degree leading to NYS Initial + Professional Certification in Middle Childhood (grades 5-9) AND NYS Initial + Professional Certification in Adolescence (grades 7-12) as specialist in chosen science PLUS NYS Initial + Professional Certification for Teaching Students with Disabilities in Middle Childhood and Adolescence as specialist in the chosen science PROGRAM (g) <i>54 credits</i> <i>2 years (1 part-time, 1 full-time)</i>

Details on each program follow.