REVISED-8/07/07

Applicant Name:_____

Admission Content Preparation Review Worksheet - Mathematics Teacher Preparation Program

The New York State Education Department (NYSED) and the National Council of Teachers of Mathematics (NCTM) have each articulated minimum requirements for the subject matter preparation of prospective secondary mathematics teachers. Our graduate teacher preparation programs assume that this preparation has been achieved for the most part during your undergraduate work. Therefore, at admissions we need to perform a transcript review to determine whether you have already met all these subject matter requirements or, if that is not the case, what coursework and/or other experiences you would need to complete before graduation in order to meet these requirements.

While our faculty is ultimately responsible for this transcript review, we would like to give you first the opportunity to document that you have met most, or possibly all, of the subject matter requirements. Sometimes course titles and numbers alone (as they appear in official transcripts) may be deceiving. Having taken those courses, you are in the best position to know which courses should or should not "count" as coursework in mathematics, as well as what specific content they covered.

Therefore, we are asking you to **complete Part A and Part B of this worksheet to the best of your ability and bring it with you to your admission interview**. Do not worry if you have questions about what specific topics really mean and/or where certain courses should be listed – you will have the opportunity to ask these questions at the interview and then modify/add to the worksheet as you wish. If needed, at the interview you will also be able to further explain how you completed the worksheet and/or to support your decisions with relevant documentation (e.g., course descriptions and syllabi of relevant courses, specific projects or assignments within a course, etc.).

This form includes three parts:

- Part A articulates the relevant New York State certification requirements in terms of subject matter coursework, and asks you to list information about all the courses you have taken in the subject matter(s) you are going to teach. This section of the worksheet will help the reviewer evaluate the extent to which you have already met these certification requirements.

- Part B articulates what your professional organization believes mathematics teachers should know about the subject matter they teach – that is, the specific areas within mathematics with which you should be familiar by the time you begin teaching. In this case, we ask you to identify courses and other relevant experiences that contributed to your preparation in each particular area as well as your assessment of the strength of your preparation in that area at this point in time.
- Part C will be completed by the interviewer after your admission interview. Here the interviewer will record his/her final recommendations about what additional subject matter coursework and/or other experiences – if any – you will need to complete, if admitted, before you can be recommended for teaching certification.

(A) New York State Requirements

New York State requires teacher candidates seeking certification in Middle Childhood or Adolescence Education as specialists in mathematics to have completed at least 30 credits of coursework in mathematics. Furthermore, the Warner School expects this coursework (a) to include 2 courses in calculus and (b) to have been completed with a GPA of 2.5 or above.

To help us evaluate the extent to which you have already met these requirements, please list in the table below all the college-level mathematics courses (or equivalent) that you have already completed, or will have completed by the time you start the teacher preparation program, along with all the other information requested. If you are not sure whether a specific course should "count" as a mathematics course, put a question mark (?) in the first column. Please also indicated any calculus course by putting an asterisk (*) in the first column.

Undergraduate degree & major:_____
Institution:_____
Overall GPA:_____

Notes	Course Number	Course Title	Credit Hours	Grade	Year taken	Institution where the course was taken (if different from undergraduate institution)

Total # credit hours in math: _____
GPA in math coursework: _____

NOTE: If you are not sure whether or not a certain course counts as a mathematics course, please bring to your admission interview as much documentation as you can about the course (e.g., official course description, syllabus, textbook, etc.)

Interviewer's comments:

(B) Professional Organization Recommendations

The National Council of Teachers of Mathematics (NCTM) has identified a number of mathematical concepts/topics/areas that mathematics teachers should be proficient in – as in order to effectively teach students this content, the first step is to make sure that the teacher understands it! These areas have been identified in the first column of the table below.

For each of these content standards, please indicate in the second column of the table the courses listed in Part A that addressed it; if there are experiences other than coursework that contributed to your learning about this content, please indicate them as well in this column as well (e.g., using this content knowledge in other courses; teaching this content; independent reading/research; relevant high school courses; work experience, etc.).

Please note that content knowledge in each of the areas identified below is a graduation, not an admission, requirement. There will be some opportunities offered in your methods courses to deepen your content preparation in at least some areas – either through class activities or by selecting a specific focus in independent and/or group projects. Applicants choosing the M.A.T. option will be taking an additional 12 credits of graduate mathematics coursework, which can be chosen to address any gaps identified in this transcript review; M.S. applicants can also be requested to take some additional mathematics courses in conjunction with their program, when needed to address some critical gaps. In some cases, applicants may be simply required to complete some additional readings and/or projects in order to address gaps in content preparation identified in this transcript review. Therefore, do not worry if at this stage you need to leave some areas in the table blank.

Finally, in the third column we ask you to provide a self-evaluation of how confident you feel about your preparation in each of the areas identified as important by NCTM, using the following scale:
1: Little to no knowledge of this content – *in which case additional coursework covering this content is likely to be required.*
2: Content is relatively familiar – *in which case it is likely that additional readings and experiences in this area, but no additional coursework, will be required.*
3: Sufficiently confident about this content.
4: Very well versed in this content.

Content Standard 9: Knowledge of numbers and operation. *Prospective mathematics teachers should*:	**Relevant coursework or other experiences:**	**Self-rating**	**Interviewer's Comments & Rating**
9.1. Analyze and explain the mathematics that underlies the procedures used for operations involving integers, rational, real, and complex numbers.			
9.2. Use properties involving number and operations, mental computation, and computational estimation.			
9.3. Provide equivalent representations of fractions, decimals, and percents.			
9.4. Create, solve, and apply proportions.			
9.5. Apply the fundamental ideas of number theory.			
9.6. Make sense of large and small numbers and use scientific notation.			
9.7. Compare and contrast properties of numbers and use scientific notation.			
9.8. Represent, use, and apply complex numbers.			
9.9. Recognize matrices and vectors as systems that have some of the properties of the real number system.			
9.10. Demonstrate knowledge of the historical development of number and number systems including contributions from diverse cultures.	*(Addressed in EDU436-Theory&Practice in Teaching & Learning Mathematics)*		

Self-rating scale: **1:** Little to no knowledge of this content. **2:** Content is relatively familiar. **3:** Sufficiently confident about this content. **4:** Very well versed in this content.

Content Standard 10: **Knowledge of different perspectives on algebra.** *Prospective mathematics teachers should*:	**Relevant coursework or other experiences:**	**Self-rating**	**Interviewer's Comments & Rating**
10.1. Analyze patterns, relationships and functions of one and two variables.			
10.2. Apply fundamental ideas of linear algebra.			
10.3. Apply the major concepts of abstract algebra to justify algebraic operations and formally analyze algebraic structures.			
10.4. Use mathematical models to represent and understand quantitative relationships.			
10.5. Use technological tools to explore algebraic ideas and representations of information in solving problems.	*(Addressed in EDU483-Integrating Mathematics and Technology)*		
10.6. Demonstrate knowledge of the historical development of algebra including contributions from diverse cultures.	*(Addressed in EDU436-Theory&Practice in Teaching & Learning Mathematics)*		

Self-rating scale: **1:** Little to no knowledge of this content. **2:** Content is relatively familiar. **3:** Sufficiently confident about this content. **4:** Very well versed in this content.

Content Standard 11: Knowledge of geometries. *Prospective mathematics teachers should*:	**Relevant coursework or other experiences:**	**Self-rating**	**Interviewer's Comments & Rating**
11.1. Demonstrate knowledge of core concepts and principles of Euclidean and non-Euclidean geometries in two and three dimensions from both formal and informal perspectives.			
11.2. Exhibit knowledge of the role of axiomatic systems and proofs in geometry.			
11.3. Analyze characteristics and relationships of geometric shapes and structures.			
11.4. Build and manipulate representations of two and three dimensional objects and visualize objects from different perspectives			
11.5. Specify locations and describe spatial relationships using coordinate geometry, vectors, and other representation systems.			
11.6. Apply transformations and use symmetry, similarity and congruence to analyze mathematical situations.			
11.7. Use concrete models, drawings, and dynamic geometric software to explore geometric ideas and their applications in real-world contexts.	*(Addressed in EDU483-Integrating Mathematics and Technology)*		
11.8. Demonstrate knowledge of the historical development of Euclidean and non-Euclidean geometries including contributions from diverse cultures.	*(Addressed in EDU436-Theory&Practice in Teaching & Learning Mathematics)*		

Self-rating scale: **1:** Little to no knowledge of this content. **2:** Content is relatively familiar. **3:** Sufficiently confident about this content. **4:** Very well versed in this content.

Content Standard 12: **Knowledge of calculus.** *Prospective mathematics teachers should*:	**Relevant coursework or other experiences:**	**Self-rating**	**Interviewer's Comments & Rating**
12.1. Demonstrate a conceptual understanding of and procedural facility with basic calculus concepts.			
12.2. Apply concepts of function, geometry, and trigonometry in solving problems involving calculus.			
12.3. Use the concepts of calculus and mathematical modeling to represent and solve problems taken from real-world contexts			
12.4. Use technological tools to explore and represent fundamental concepts of calculus.	*(Addressed in EDU483-Integrating Mathematics and Technology)*		
12.5. Demonstrate knowledge of the historical development of calculus including contributions from diverse cultures.	*(Addressed in EDU436-Theory&Practice in Teaching & Learning Mathematics)*		

Self-rating scale: **1:** Little to no knowledge of this content. **2:** Content is relatively familiar. **3:** Sufficiently confident about this content. **4:** Very well versed in this content.

Content Standard 13: **Knowledge of discrete mathematics.** *Prospective mathematics teachers should*:	**Relevant coursework or other experiences:**	**Self-rating**	**Interviewer's Comments & Rating**
13.1. Demonstrate knowledge of basic elements of discrete mathematics such as graph theory, recurrence relations, finite difference approaches, linear programming, and combinatorics.			
13.2. Apply the fundamental ideas of discrete mathematics in the formulation and solution of problems arising from real-world situations.			
13.3. Use technological tools to solve problems involving the use of discrete structures and the application of algorithms.	*(Addressed in EDU483-Integrating Mathematics and Technology)*		
13.4. Demonstrate knowledge of the historical development of discrete mathematics including contributions from diverse cultures.	*(Addressed in EDU436-Theory&Practice in Teaching & Learning Mathematics)*		

Self-rating scale: **1:** Little to no knowledge of this content. **2:** Content is relatively familiar. **3:** Sufficiently confident about this content. **4:** Very well versed in this content.

Content Standard 14: Knowledge of data analysis, statistics and probability. *Prospective mathematics teachers should*:	**Relevant coursework or other experiences:**	**Self-rating**	**Interviewer's Comments & Rating**
14.1. Design investigations, collect data, and use a variety of ways to display data and interpret data representations that may include bivariate data, conditional probability and geometric probability.			
14.2. Use appropriate methods such as random sampling or random assignment of treatments to estimate population characteristics, test conjectured relationships among variables, and analyze data.			
14.3. Use appropriate statistical methods and technological tools to describe shape and analyze spread and center.			
14.4. Use statistical inference to draw conclusions from data.			
14.5. Identify misuses of statistics and invalid conclusions from probability.			
14.6. Draw conclusions involving uncertainty by using hands-on and computer-based simulation for estimating probabilities and gathering data to make inferences and conclusions.			
14.7. Determine and interpret confidence intervals.			
14.8. Demonstrate knowledge of the historical development of statistics and probability including contributions from diverse cultures.	*(Addressed in EDU436-Theory&Practice in Teaching & Learning Mathematics)*		

Self-rating scale: **1:** Little to no knowledge of this content. **2:** Content is relatively familiar. **3:** Sufficiently confident about this content. **4:** Very well versed in this content.

Content Standard 15: **Knowledge of measurement.** *Prospective mathematics teachers should*:	**Relevant coursework or other experiences:**	**Self-rating**	**Interviewer's Comments & Rating**
15.1. Recognize the common representations and uses of measurement and choose tools and units for measuring.			
15.2. Apply appropriate techniques, tools, and formulas to determine measurements and their application in a variety of contexts.			
15.3. Completes error analysis through determining the reliability of the numbers obtained from measures.			
15.4. Demonstrate knowledge of the historical development of measurement and measurement systems including contributions from diverse cultures.			

Self-rating scale: **1:** Little to no knowledge of this content. **2:** Content is relatively familiar. **3:** Sufficiently confident about this content. **4:** Very well versed in this content.

(C) Summary Evaluation -- TO BE COMPLETED LATER BY THE INTERVIEWER

Based on the information and documentation you have provided, as well as the discussion that took place during the admission interview, the interviewer will determine which of the following categories apply to your situation:

___ The applicant's previous coursework and experiences meet and/or exceed all NYS and professional organization requirements. No additional experience is required.

___ The applicant's previous coursework and experiences, combined with the experiences that will take place as part of our teacher preparation program, will be sufficient to meet all NYS and professional organization minimum requirements by graduation. No additional coursework in the subject matter is required, although the candidate is recommended to do some independent work to strengthen his/her understanding of the following content areas:

_____
_____
_____

___ The applicant's previous coursework and experience, combined with the experiences that will take place as part of our teacher preparation program, are not yet sufficient to meet all NYS and professional organization minimum requirements. The following additional coursework and experiences will need to be completed to meet these requirements:

_____
_____
_____
_____
_____
_____