Assessment Report (2010-2011)

Central Connecticut State University
Department of Mathematical Sciences
Assessment for the M.S. Program in Mathematics – For Certified Secondary Teachers

Preamble:

The Master of Science in Mathematics provides teachers of secondary mathematics with additional content and pedagogical knowledge that will make them more effective in their profession.

Section 1: Program Learning Outcomes:

Students in this program will be expected to:

- deepen their comprehension of mathematics by studying advanced topics not covered in undergraduate curriculum and thus develop the dispositions of life-long learners of mathematics;
- develop as reflective practitioners, striving for continual improvement in their teaching and student learning;
- understand current research on teaching and learning mathematics, trends in mathematics curriculum, and the effective use of technology in the teaching of mathematics;
- acquire skills necessary to conduct research in mathematics education; and
- acquire skills necessary to make creative contributions to the field, such as writing, collecting data, and developing curriculum activities.

Section 2: Findings

For their capstone experience, students may choose to complete a Thesis (Math 599) or a Special Project (Math 590). Immediately prior to the thesis/project, students take the Math 598 course which is designed to familiarize graduate students with techniques and resources associated with research in mathematics and mathematics education. In the future, data will be collected from MATH 598 Research in Mathematics Education and the Capstone Experience (either Plan A or C):

Plan A: 33 credits consisting of 30 credits from the above plus MATH 599 - Thesis (3 credits)

Plan C: 33 credits consisting of 30 credits from the above plus MATH 590 - Special Project (3 credits).

At the completion of Math 598, students present a thesis/special project proposal. A presentation rubric is used as an assessment tool for the thesis/special project proposal. Students with accepted proposals move on to complete the thesis or special project. Finally the rubric (see Appendix A) included in the Master's Thesis and Special Project Capstone Handbooks are used to assess students at the end of their program.

Section 3: Analysis

There is no analysis at this time. The Math Department will begin collecting data Spring 2012.

Section 4: Use of Results

Not applicable at this time.

APPENDIX A

Appendix I

Capstone Rubric

Student's Name _____ CCSU ID # _____

Faculty Assessors _____

Capstone Rubric (Plans A/C/E)	Does Not Meet Expectations	Meets Expectations	Exceeds Expectations
1. Definition of Project/Introduction Or Statement of Hypothesis	Introduction does not clearly explain the nature and structure of the capstone, its rationale and relevance to discipline.	Introduction clearly presents the capstone, its nature, relevance and structure.	Introduction makes strong case for the value the capstone provides to the discipline, as well as presenting its nature and structure.
2. Thesis/Argument	Argument is unclear, inconsistent, inappropriate, or not suitably original.	Argument is appropriate, clearly presented, consistently applied, and suitably original.	Argument is clear, consistent, sophisticated, and strikingly original.
3. Familiarity with/ Grounded in Literature. Knowledgeable of the current state of discipline	Does not indicate familiarity with literature; has large gaps and shows little grounding of the capstone in the literature. No substantive engagement.	Displays familiarity with reasonably full range of literature; demonstrates an appropriate grounding and engagement with the literature.	Displays impressive familiarity with full range of and grounding in literature; engages with it substantively and productively.
4. Methodology or Plans for the Project	Methodology is not clearly presented, not appropriate or not adequately applied to capstone.	Methodology is clearly presented, relevant and appropriately applied to capstone.	Methodology and project are mutually enriching.
5. Results/Findings/ Demonstration of Thesis Argument and Claims	Outcomes minimally address research questions and fail to demonstrate its claims persuasively. Presentation minimally addresses research questions; structure reflects a lack of organization, detail, understanding and/or accuracy.	Outcomes address research questions. Presentation of evidence uses argumentation and is reasonably persuasive in making connections with research ideas.	Outcomes thoroughly address research questions. Presentation of evidence conveys a mastery of argumentation. Structure provides a coherent and clear focus of new understandings.
6. Summary/ Conclusion or closing argument	Capstone summary is minimally supported by results and/or findings; exhibits a lack of original ideas, personal interpretation of findings, and/or an inability to draw an inventive synopsis.	Summary sufficiently supported by results and/or findings while adequately and accurately summarizing the capstone.	Summary presents carefully analyzed information to present inventive and originally developed decisions and/or conclusions supported by results and/or findings.
7. Bibliography/ References	Lack of proper format and limited details with many sources missing or incomplete.	Bibliography/References are mostly complete and correctly formatted. Capstone contains a variety of sources.	Bibliography/References are complete (all sources shown) and correctly formatted; inserted to validate evidence.
8. Writing	Writing is unclear, distracts from meaning, is not at appropriate level, or contains excessive errors.	Writing is clear and appropriately sophisticated, with virtually no errors, and supports meaning.	Writing is at or near professional level, has no errors, and enhances meaning.

Totals _____ _____ _____

Overall Score: _____

APPENDIX B

Course Descriptions and Credit Totals

Course and Capstone Requirements: Plans A and C offered as options.
General Education Electives (3 credits): As approved by faculty advisor

Educational Foundations (3 credits):

One (1) of the following:

EDF 500	Contemporary Educational Issues	(3 credits)
EDF 516	School and Society	(3 credits)
EDF 524	Foundations of Contemporary Theories of Curriculum	(3 credits)
EDF 525	History of American Education	(3 credits)
EDF 538	The Politics of Education	(3 credits)
EDF 583	Sociological Foundations of Education	(3 credits)

Secondary Mathematics Education (9 credits):

MATH 547	Reflective Practice in Teaching Mathematics	(3 credits)

plus 6 credits chosen from:

MATH 504	Topics in Mathematics	(1 to 3 credits)
MATH 534	Techniques in Diagnosis and Remediation for the Teaching of Mathematics - K-12	(3 credits)
MATH 540	Curriculum Problems in School Mathematics	(3 credits)
MATH 543	Secondary School Algebra with Technology from an Advanced Viewpoint	(3 credits)
MATH 544	Secondary School Geometry with Technology from an Advanced Viewpoint	(3 credits)
MATH 580	Directed Study in Mathematics	(1 to 3 credits)

No more than six credits in courses with the STAT designation. One course must be STAT 453 - Applied Statistical Inference (3 credits) unless this course was taken as an undergraduate.

Mathematics and Statistics Content Courses (12 credits):

Courses to be chosen from:

MATH 421	History of Mathematics (3 credits)	
MATH 440	Selected Topics in Mathematics	(1 to 3 credits)
MATH 468	Symbolic Logic	(3 credits)
MATH 469	Number Theory	(3 credits)
MATH 470	Mathematical Methods in Operations Research	(3 credits)
MATH 477	Numerical Analysis	(3 credits)
MATH 491	Advanced Calculus	(3 credits)
MATH 515	Abstract Algebra I	(3 credits)
MATH 516	Abstract Algebra II	(3 credits)
MATH 519	Principles of Real Analysis I	(3 credits)
MATH 520	Principles of Real Analysis II	(3 credits)
MATH 523	General Topology	(3 credits)
MATH 525	Higher Geometry	(3 credits)
MATH 526	Complex Variables	(3 credits)
STAT 453	Applied Statistical Inference	(3 credits)
STAT 455	Experimental Design	(3 credits)
STAT 567	Linear Models and Time Series	(3 credits)