

OFFICE OF QUALITY PROFESSIONALS AND SPECIAL SCHOOLS
Summary of State Board of Education Items
April 17-18, 2014

OFFICE OF EDUCATOR LICENSURE

29. Approval of Request from Blue Mountain College for a Supplemental Endorsement in Secondary Mathematics

Background Information:

In order to meet the current requirements in licensure guidelines for offering a secondary mathematics endorsement, Blue Mountain College has outlined specific courses designed to provide the mathematical content needed to be effective teachers.

The select courses are in line with recommendations from the Mississippi Association of Mathematics Teacher Educators (MAMTE), the National Council for Teachers of Mathematics (NCTM) standards and the Conference Board of the Mathematical Sciences (CBMS).

On March 7, 2014, the Commission on Teacher and Administrator Education, Certification and Licensure and Development approved the proposal.

Recommendation: Approval

Back-up material attached

EDUCATION PROGRAM PROPOSAL REVIEW FORM (R)

Reviewer Name	Reviewer Phone:
Reviewer Title/Position:	Reviewer Email:
Institution Submitting Proposal: Blue Mountain College	Date Submitted to MDE: 1/30/14
Proposed Date of Implementation: Immediately upon approval	Proposal to Implement a New Program or to Modify an Existing: <input checked="" type="checkbox"/> Initial Teacher Education Program <input type="checkbox"/> Educational Leadership Program <input type="checkbox"/> Other Advanced Education Program
In addition to the <u>current education program outline/course description</u> , the proposal material should include for your review, where applicable the following: <ul style="list-style-type: none">➤ a copy of the current program➤ outline of the proposed program with clear indication of any proposed modifications➤ proposed course syllabi and course descriptions➤ a list of faculty who will provide instruction for the proposed courses/program of study and their curriculum vitae➤ a list and example of a program outline for similar (or same) programs/courses of study at one or more IHLs (instate or out-of-state), or provide URLs if posted online➤ documentation of institution administrative approval and MS IHL approval (if MS public institution)➤ current special program recognition where applicable➤ any other documentation that further supports the rationale for the proposal	
As a qualified education professional, your review should ensure the program utilizes current content that is infused with state (InTASC) standards and national professional association standards, and the program provides instruction for program candidates on the most recently adopted state curriculum frameworks or common core for subject areas when appropriate, or adheres to other applicable state content and instruction policy and guidelines.	
Request: Approval of a secondary mathematics supplemental endorsement program with specified 21 hours of approved coursework	
Provide findings/comments/recommendations (if needed, please use additional space or provide an attachment): <i>This proposed program includes all of the recommended courses approved by the MDE. The course descriptions do not indicate whether the Common Core State Standards for Mathematics will be addressed in the methods course, however, inclusion of the NCTM/NCATE standards shows evidence of attention to current mathematics instructional standards.</i>	
Please check one: <input checked="" type="checkbox"/> I recommend approval of this proposal for submission to the Licensure Commission on Teacher and Administrator Education, Certification and Licensure and Development. <input type="checkbox"/> I do not recommend approval of this proposal for submission to the Licensure Commission on Teacher and Administrator Education, Certification and Licensure and Development. <input type="checkbox"/> I recommend approval pending evidence of amendments to the proposal that address cited areas of concern (attached).	

E-mail this form to ggettis@mde.k12.ms.us or acarter@mde.k12.ms.us or fax to 601-359-2778.

EDUCATION PROGRAM PROPOSAL REVIEW FORM (R)

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Reviewer Title/Position:	Reviewer Email: _____
Institution Submitting Proposal: Blue Mountain College	Date Submitted to MDE: 1/30/14
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Request: Approval of a secondary mathematics supplemental endorsement program with specified 21 hours of approved coursework	
Provide findings/comments/recommendations (if needed, please use additional space or provide an attachment): Proposed program clearly meets the requirements for the supplemental endorsement as well as the recommendations of MAMTE.	
<p>Please check one:</p> <p><input checked="" type="checkbox"/> I recommend approval of this proposal for submission to the Licensure Commission on Teacher and Administrator Education, Certification and Licensure and Development.</p> <p><input type="checkbox"/> I do not recommend approval of this proposal for submission to the Licensure Commission on Teacher and Administrator Education, Certification and Licensure and Development.</p> <p><input type="checkbox"/> I recommend approval pending evidence of amendments to the proposal that address cited areas of concern (attached).</p>	



Office of Teacher and Administrator Preparation
Mississippi Department of Education
359 N. West Street/P.O. Box 771
Jackson, MS 39205-0771
601.359.3631

EDUCATION PROGRAM APPROVAL REQUEST FORM

Institution: Blue Mountain College

Date Submitted: January 28, 2014

Submitted by: Dr. Sharon Enzor

Commission Approval Date: _____

Vice President for Academic Affairs

State Board Approval Date: _____

Proposed date of Program Implementation: August 19, 2014 (Fall Semester 2014)

Proposal Request and Support Materials are provided for the approval to implement:

☐ New Program ☒ Modifications to Existing Program ☒ Licensure Requirement

In addition to your current education program course list/description, you must provide: 1) a copy of the proposed new program; 2) the current program with clear indication of proposed modifications; 3) any evidence of institutions (state, regional or national) with the same or a similar course of study; 4) evidence of qualified faculty; and 5) any other documentation that further supports the proposal.

Please state your specific request:

Blue Mountain College wishes to continue to offer the supplemental endorsement in Secondary Mathematics and is submitting this proposal, which meets the new Mississippi State Board of Education requirements.

State rationale:

There is a shortage of secondary mathematics teachers in some school districts in north Mississippi. Blue Mountain College wishes to continue to offer the supplemental endorsement in Secondary Mathematics.

NOTE: Program approval is subject to standard review procedures that involve several entities and, therefore, timelines for final approval by the Office of Teacher and Administrator Preparation (TAP) may vary. After TAP approves the program, if it is a new or modified program or requires licensure changes, it may then be subject to approval by the Licensure Commission on Teacher and Administrator Education, Certification and Licensure and Development and the State Board of Education before candidates are eligible for Mississippi Teacher Licensure.



Blue Mountain College

FOUNDED 1873

January 28, 2014

Office of the Vice President for Academic Affairs

Ms. Gail Gettis
Division Director
Teacher and Administrator Preparation
Mississippi Department of Education
359 N. West St.
P.O. Box 771
Jackson, MS 39205-0771

Dear Ms. Gettis:

Enclosed please find two program approval requests for Blue Mountain College. One request is for approval of a 21-hour Secondary Mathematics supplemental endorsement that meets the new Mississippi State Board of Education requirements. The second is the request to replace an elective course in the B.S.Ed. in Secondary English Degree Program with an American Literature course. The proposed changes have met the Blue Mountain College requirements for curriculum changes.

If you have questions, please contact Dr. Jenetta Waddell, our Department of Education Chair.

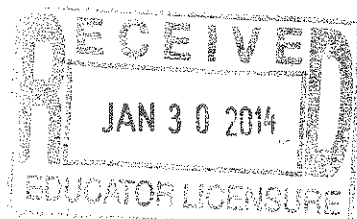
Sincerely,

Sharon Ball Enzor, Ed.D.
Vice President for Academic Affairs
Blue Mountain College | P.O. Box 160
Blue Mountain, MS 38610
662.685.4776 | senzor@bmc.edu

Enclosures: Request for approval of supplemental endorsement
Request to replace elective course

cc: Dr. Jenetta Waddell

SBE/dhc



Clear Indication of Proposed Modifications

The courses outlined above were chosen in order to provide teachers the mathematical content needed to be effective teachers. These courses are in line with recommendations from the Mississippi Association of Mathematics Teacher Educators (MAMTE), the National Council for Teachers of Mathematics NCATE Standards, as well as the recommendations as outlined by the Conference Board of the Mathematical Sciences (CBMS). The recommendations from these organizations are included for your reference.

MAMTE Recommendation for Secondary Mathematics Supplemental Endorsement Program

Supplemental Endorsement Program for Mathematics MAMTE Symposium, May 2012 Revised by MDE Licensure Sub-Committee, July 2012		
Hours	Course type	Notes
6	Calculus	Minimum number of hours: MAMTE strongly suggests to universities/colleges that this DOES NOT include pre-calculus course
3	Geometry	
3	Statistics	
3	Advanced Algebra Course	Linear Algebra Abstract Algebra
6	ELECTIVES (300+ level; Calculus III; Calculus IV; Elementary Functions/Pre-Cal; or Secondary Mathematics Methods Course)	Suggestion: MAMTE strongly suggests a Foundations of Math course and a Methods course

NCTM/NCATE Mathematics Content for Secondary Mathematics (2003 Standards)

<http://www.nctm.org/standards/content.aspx?id=2978>

Process Standards (Standards 1-7)

The process standards are based on the belief that mathematics must be approached as a unified whole. Its concepts, procedures, and intellectual processes are so interrelated that, in a significant sense, its “whole is greater than the sum of the parts.” This approach would best be addressed by involvement of the mathematics content, mathematics education, education, and field experience faculty working together in developing the candidates’ experiences.

Likewise, the response to the disposition standard will require total faculty input. This standard addresses the candidates’ nature and temperament relative to being a mathematician, an instructor, a facilitator of learning, a planner of lessons, a member of a professional community, and a communicator with learners and their families.

Standard 1: Knowledge of Mathematical Problem Solving

Candidates know, understand, and apply the process of mathematical problem solving.

Indicators

- 1.1 Apply and adapt a variety of appropriate strategies to solve problems.
- 1.2 Solve problems that arise in mathematics and those involving mathematics in other contexts.
- 1.3 Build new mathematical knowledge through problem solving.
- 1.4 Monitor and reflect on the process of mathematical problem solving.

Standard 2: Knowledge of Reasoning and Proof

Candidates reason, construct, and evaluate mathematical arguments and develop an appreciation for mathematical rigor and inquiry.

Indicators

- 2.1 Recognize reasoning and proof as fundamental aspects of mathematics.
- 2.2 Make and investigate mathematical conjectures.
- 2.3 Develop and evaluate mathematical arguments and proofs.
- 2.4 Select and use various types of reasoning and methods of proof.

Standard 3: Knowledge of Mathematical Communication

Candidates communicate their mathematical thinking orally and in writing to peers, faculty, and others.

Indicators

- 3.1 Communicate their mathematical thinking coherently and clearly to peers, faculty, and others.
- 3.2 Use the language of mathematics to express ideas precisely.
- 3.3 Organize mathematical thinking through communication.
- 3.4 Analyze and evaluate the mathematical thinking and strategies of others.

Standard 4: Knowledge of Mathematical Connections

Candidates recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.

Indicators

- 4.1 Recognize and use connections among mathematical ideas.
- 4.2 Recognize and apply mathematics in contexts outside of mathematics.
- 4.3 Demonstrate how mathematical ideas interconnect and build on one another to produce a coherent whole.

Standard 5: Knowledge of Mathematical Representation

Candidates use varied representations of mathematical ideas to support and deepen students' mathematical understanding.

Indicators

- 5.1 Use representations to model and interpret physical, social, and mathematical phenomena.
- 5.2 Create and use representations to organize, record, and communicate mathematical ideas.
- 5.3 Select, apply, and translate among mathematical representations to solve problems.

Standard 6: Knowledge of Technology

Candidates embrace technology as an essential tool for teaching and learning.

Indicator

- 6.1 Use knowledge of mathematics to select and use appropriate technological tools, such as but not limited to, spreadsheets, dynamic graphing tools, computer algebra systems, dynamic statistical packages, graphing calculators, data-collection devices, and presentation software.

Standard 7: Dispositions

Candidates support a positive disposition toward mathematical processes and mathematical learning.

Indicators

- 7.1 Attention to equity
- 7.2 Use of stimulating curricula
- 7.3 Effective teaching
- 7.4 Commitment to learning with understanding
- 7.5 Use of various assessments

7.6 Use of various teaching tools including technology

Pedagogy (Standard 8)

In addition to knowing students as learners, mathematics teacher candidates should develop knowledge of and ability to use and evaluate instructional strategies and classroom organizational models, ways to represent mathematical concepts and procedures, instructional materials and resources, ways to promote discourse, and means of assessing student understanding. This section on pedagogy is to address this knowledge and skill.

Standard 8: Knowledge of Mathematics Pedagogy

Candidates possess a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning.

Indicators

- 8.1 Selects, uses, and determines suitability of the wide variety of available mathematics curricula and teaching materials for all students including those with special needs such as the gifted, challenged and speakers of other languages.
- 8.2 Selects and uses appropriate concrete materials for learning mathematics.
- 8.3 Uses multiple strategies, including listening to and understanding the ways students think about mathematics, to assess students' mathematical knowledge.
- 8.4 Plans lessons, units and courses that address appropriate learning goals, including those that address local, state, and national mathematics standards and legislative mandates.
- 8.5 Participates in professional mathematics organizations and uses their print and on-line resources.
- 8.6 Demonstrates knowledge of research results in the teaching and learning of mathematics.
- 8.7 Uses knowledge of different types of instructional strategies in planning mathematics lessons.
- 8.8 Demonstrates the ability to lead classes in mathematical problem solving and in developing in-depth conceptual understanding, and to help students develop and test generalizations.
- 8.9 Develop lessons that use technology's potential for building understanding of mathematical concepts and developing important mathematical ideas.

Content (Standards 9-15)

Candidates' comfort with, and confidence in, their knowledge of mathematics affects both what they teach and how they teach it. Knowing mathematics includes understanding specific concepts and procedures as well as the process of doing mathematics. That knowledge is the subject of the following standards.

Standard 9: Knowledge of Number and Operation

Candidates demonstrate computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and meanings of operations.

Indicators

- 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 number systems.
- 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.

Standard 10: Knowledge of Different Perspectives on Algebra

Candidates emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.

Indicators

- 10.1 Analyze patterns, relations, 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 and in solving problems.
- 10.6 Demonstrate knowledge of the historical development of algebra including contributions from diverse cultures.

Standard 11: Knowledge of Geometries

Candidates use spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties.

Indicators

- 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 representational 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.
- 11.8 Demonstrate knowledge of the historical development of Euclidean and non-Euclidean geometries including contributions from diverse cultures.

Standard 12: Knowledge of Calculus

Candidates demonstrate a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in the techniques and application of the calculus.

Indicators

- 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.
- 12.5 Demonstrate knowledge of the historical development of calculus including contributions from diverse cultures.

Standard 13: Knowledge of Discrete Mathematics

Candidates apply the fundamental ideas of discrete mathematics in the formulation and solution of problems.

Indicators

- 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.

13.4 Demonstrate knowledge of the historical development of discrete mathematics including contributions from diverse cultures.

Standard 14: Knowledge of Data Analysis, Statistics, and Probability

Candidates demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability.

Indicators

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.

Standard 15: Knowledge of Measurement

Candidates apply and use measurement concepts and tools.

Indicators

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 Complete 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.

Field-Based Experiences (Standard 16)

The development of mathematics teacher candidates should include opportunities to examine the nature of mathematics, how it should be taught and how students learn mathematics; observe and analyze a range of approaches to mathematics teaching and learning, focusing on the tasks, discourse, environment and assessment; and work with a diverse range of students individually, in small groups, and in large class settings.

Standard 16: Field-Based Experiences

Candidates complete field-based experiences in mathematics classrooms.

Indicators

16.1 Engage in a sequence of planned opportunities prior to student teaching that includes observing and participating in both middle and secondary mathematics classrooms under the supervision of experienced and highly qualified teachers.

16.2 Experience full-time student teaching in secondary mathematics that is supervised by a highly qualified teacher and a university or college supervisor with secondary mathematics teaching experience.

16.3 Demonstrate the ability to increase students' knowledge of mathematics.

Education Program Proposal Recommendation Checklist

☐ New Program ☒ Modification

Institution Submitting Proposal: Blue Mountain College		Date: 02/21/14
Faculty Contact: Dr. Jenetta Waddell	Email: jwaddell@bmc.edu	Phone: 662.685.4771 Ext. 118
Program Description: Prescribed 21-hour Secondary Math Endorsement Program		

Please address the following recommendations and indicate where the revisions were made within the proposal; *or if not addressed, explain why*. You are not limited in your responses to the spaces provided below; expand/reformat boxes or add pages as needed.

Overall Recommendation of **Reviewer 1**: Approval to present to the Commission (see recommendation below)

- **Reviewer Recommendation:** This proposed program includes all of the recommended courses approved by the MDE. The course descriptions do not indicate whether the Common Core State Standards for Mathematics will be addressed in the methods course; however, inclusion of the NCTM/NCATE standards shows evidence of attention to current mathematics instructional standards.
- **EPP Response:** Course syllabi submitted for the ED450 Methods course with evidence of addressing state standards, including Common Core

Overall Recommendation of **Reviewer 2**: Approval to present to the Commission

Overall Recommendation of **Reviewer 3**: Approval to go forward to Commission