Comprehensive Program Review Self-Study

MAT/MEd Secondary Mathematics Education

Columbus State University

April 2013

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EXECUTIVE SUMMARY - MAT/MEd Secondary Mathematics Education

Major Findings of the Program's Quality and Productivity

Program Quality: Very Strong
In February 2013, a continuing approval review of the Educator Preparation Unit at CSU was conducted by a Board of Examiners (BOE) consisting of representatives from the National Council for Accreditation of Teacher Education (NCATE) and the Georgia Professional Standards Commission (PSC). The 2008 NCATE Standards and the Georgia 2008 Standards were used to assess the unit and its programs. The BOE judged all standards to be met for the unit and for all initial and advanced programs. There were no areas for improvement cited, and the team noted multiple areas of strength.

Overall, the M.A.T. and M.Ed. Secondary Mathematics Education programs are very strong and prepare highly qualified mathematics teachers who have the knowledge, skills, and dispositions to help all students learn. This is demonstrated by GACE pass rates of 90% or above, consistent ratings of meets or exceeds expectations on performance evaluations, overall GPAs of 3.0 or better, and satisfactory completion of a culminating research project.

Program Productivity: Satisfactory
The total number of students enrolled in master's degree programs in secondary mathematics increased from 19 to 24 in 2009-2010 and then to 28 in 2010-11, an increase of 47% from 2008-09 to 2010-11. In 2011-2012, enrollment in M.A.T. and M.Ed. Secondary Mathematics Education programs decreased from a combined total of 28 in 2010-11 to 15, a decrease of 46%. A similar decline occurred in all other secondary education programs, with the exception of the M.A.T. in Secondary English, but the percentage decrease was lower in the other programs. Average enrollment for the five-year period from 2007-2012 was 24. Enrollment in the M.A.T./M.Ed. Secondary Mathematics Education programs has been comparable to enrollment in other graduate secondary education programs. In average enrollment, Secondary Mathematics Education ranks second among the M.A.T./M.Ed. Secondary Education programs.

The number of M.A.T./M.Ed. Secondary Mathematics degrees conferred by CSU is small (an average of four per year) but has increased steadily from three in 2008-2009 to nine in 2011-2012). The five year average is comparable to Secondary Science and Secondary Social Science programs but less than Secondary English. Among the twelve USG state universities that offer master's degrees in secondary education, CSU ranks fourth in average number of degrees conferred. As the only USG institution within a 90 mile radius of Columbus that offers a master's degree in secondary mathematics, CSU provides math teachers in its service region an opportunity that they might not have otherwise, to gain expertise in mathematics education.

List of Recommendations for Improving Program Quality

The Mathematics Program Advisory Council (PAC) oversees the M.A.T. and M.Ed. programs in Secondary Mathematics and works to improve the curriculum, courses, and resources offered to teachers. Though the program quality is very strong, we continue to look for ways to make improvements. Current initiatives include:

- aligning the curriculum with the new Common Core Georgia Performance Standards for

Mathematics in an effort to help prepare teachers to teach with the new standards,
- examining math course requirements in the M.Ed. program to determine whether or not changes are needed to provide candidates with a broader and more in-depth preparation in advanced mathematics,
- hiring a new mathematics education faculty member and program coordinator to decrease the need for use of part-time faculty and provide greater consistently in program delivery.

List of Recommendations for Improving Program Productivity

Recommendations to improve program productivity are as follows.

- Align coursework with the new Common Core Georgia Performance Standards for Mathematics. By responding to current initiatives and mandates to make our programs more relevant for classroom teachers, we hope to recruit more teachers into the M.A.T. and M.Ed. programs.
- Attract more students into the undergraduate mathematics and mathematics education programs through an innovative UTeach replication program that will then provide a larger pool of teachers from which to recruit for the M.Ed. program.
- Seek grant funding to support graduate students in mathematics education.
- Explore possibility of admitting students from outside of Georgia into the online M.A.T. program.

Conclusion about the Program's Viability at CSU

The M.A.T./M.Ed. Secondary Mathematics Education programs at CSU are viable. As indicated by the evaluation of the NCATE/PSC Board of Examiners in February 2013, the quality of the programs is very strong. All NCATE/PSC standards were judged to be met for all initial and advanced programs with no areas for improvement and multiple areas of strength cited. In addition, program quality is enhanced by special opportunities available at CSU. Mathematics education majors have access to resources and professional development opportunities offered through the Columbus Regional Mathematics Collaborative (CRMC).

The viability of the program is also ensured by the sharing of resources among all secondary mathematics education programs at CSU. Graduate mathematics courses at the 5000-level also enroll undergraduates on a cross-listed basis. Furthermore, the College of Education and Health Professions, Department of Mathematics and Philosophy, CRMC, and P-12 teachers work collaboratively on the design and implementation of the secondary mathematics education programs at all levels (B.S, M.A.T., M.Ed., and Ed.S.). Representatives from each of these groups work together to make improvements to the mathematics education programs at CSU and to impact mathematics education in our region. The M.A.T. and M.Ed. programs in secondary mathematics are valuable resources for teachers in our region who want to grow professionally and gain expertise in the field of mathematics education.

Graduates of the M.Ed. Secondary Mathematics program are also a valuable resource for our undergraduate program in secondary mathematics. A substantial number of program graduates teach in systems served by CSU, especially Muscogee County. Our graduate programs in secondary mathematics have helped to create a cadre of leaders within our Partner School Network. Graduates often serve CSU as pre-student teaching cooperating teachers and cooperating teachers for student teaching. They are an invaluable asset in assisting with the

development of our undergraduates.

Enrollment in the M.A.T./M.Ed. Secondary Mathematics Education programs has been comparable to enrollment in other graduate secondary education programs. In average enrollment, Secondary Mathematics Education ranks second among the M.A.T./M.Ed. Secondary Education programs. As the only USG institution within a 90 mile radius of Columbus that offers a master's degree in secondary mathematics, CSU provides math teachers in its service region an opportunity to gain expertise in mathematics education. This is an opportunity they might not have if CSU did not offer this degree program. With the critical shortage of highly-qualified mathematics teachers, we need to provide every possible opportunity for teachers to grow professionally and enhance their knowledge and skills in teaching mathematics.

Program Improvement Plan - This section should include plans for resource allocation and should be completed by the dean in consultation with the VPAA at the conclusion of the self-study conducted by the department. The following is a draft.

In response to the findings of the Comprehensive Program Review, the faculty members and administrators of the M.A.T./M.Ed. in Secondary Mathematics Education propose the strategies outlined below to improve the quality, productivity and viability of the program. These strategies will be facilitated by the Mathematics Education Program Advisory Council (PAC).

Goals	Projected Timeline	Resource Allocations
Align the curriculum with the new Common Core Georgia Performance Standards for Mathematics.	2013-2014	Personnel resources
Examine math course requirements in the M.Ed. program to determine whether or not changes are needed.	2013-2014	Personnel resources
Hire a new mathematics education faculty member and program coordinator.	Fall 2013	State funding for faculty line
Attract more students into the undergraduate mathematics and mathematics education programs through UTeach Columbus program and other STEM initiatives.	Ongoing	Financial and personnel resources
Seek grant funding to support graduate students in mathematics education.	Ongoing	Financial and personnel resources
Explore possibility of admitting students from outside the state of Georgia into the online M.A.T. program.	2013-2014	Personnel resources

Summary Recommendation and Supporting Rationale

Recommendation: *Maintain the Program at the Current Level.* The program quality is very strong, but the number of degrees conferred each year is small. Because of decreasing interest in mathematics as students progress through high school and college, few students take the higher level mathematics courses needed to prepare one for a career in mathematics or mathematics education. We are working to change this through various STEM initiatives on campus (UTeach Columbus, Noyce Scholarship Program, NeXtGen STEM). Through these efforts, we hope to attract more students into the undergraduate mathematics and mathematics education programs so that we have a larger pool of candidates from which to recruit for our M.A.T. and M.Ed. programs.

THE PROGRAM'S DETAILED SELF-STUDY

Section One - Program Background and Overview

I. Brief Program Overview

The M.A.T. and M.Ed. programs in Secondary Mathematics Education prepare highly qualified mathematics teachers who possess the knowledge, skills, and dispositions necessary to promote high levels of learning for all students in grades 6-12. In mathematics content courses, mathematics education courses, professional courses, and field experiences, candidates have multiple opportunities to demonstrate excellence in teaching, scholarship, and professionalism. Creating opportunities for candidates to demonstrate excellence in these three areas is consistent with the Educator Preparation Conceptual Framework and is reflected in the broad goals of the secondary mathematics education programs. These goals are briefly summarized as:

M.A.T. graduates will be able to:

1. Demonstrate knowledge and understanding of mathematics content taught in middle and secondary mathematics classrooms
2. Demonstrate continual growth and proficiency in planning instruction based on standards and knowledge of students
3. Demonstrate proficiency in using a wide range of instructional strategies and differentiating instruction to help all students learn
4. Demonstrate the ability to create positive learning environments by successfully implementing classroom management plans and fostering effective communication
5. Demonstrate proficiencies related to selecting and using curricula, technology, and other materials to enhance the teaching and learning of mathematics
6. Demonstrate proficiency in assessing student learning and using assessment data to improve teaching and learning
7. Apply and add to the body of educational research related to the teaching and learning of mathematics
8. Display ongoing reflection and growth regarding values, commitments, dispositions, and habits associated with effective and professional teaching.

M.Ed. graduates will be able to:

1. Demonstrate expertise in understanding and using mathematics
2. Demonstrate expertise in planning effective instruction based on standards and knowledge of students
3. Demonstrate expertise in implementing effective instruction to help every student succeed
4. Demonstrate expertise in creating a classroom environment that supports the learning of all students
5. Demonstrate expertise in selecting and using technology, curricula, and other materials to enhance student learning
6. Demonstrate expertise in assessing instruction, both the effect on individuals and on programs, and using assessment data to improve teaching and learning
7. Apply and add to the body of educational research related to the teaching and learning of mathematics

8. Display values, commitments, dispositions, and habits associated with accomplished teaching.

M.A.T. candidates seeking initial teacher certification, develop proficiency in applying the knowledge, skills, and dispositions to impact P-12 student learning. They also begin to develop expertise in their teaching field through the completion of several advanced level courses taken with other M.Ed. candidates.

Candidates pursuing a M.Ed. degree in Secondary Mathematics Education develop and demonstrate *expertise* as they progress through the program. Graduates of the program are prepared to apply their expert knowledge of mathematics and mathematics teaching and learning in grade 6-12 classrooms, thus helping to meet the demand for highly qualified mathematics teachers.

The M.A.T. and M.Ed. programs in Secondary Mathematics are closely aligned with CSU's mission of achieving academic excellence and preparing individuals for a life of success, leadership, and responsibility through community awareness, engagement, and service to others. Focusing on growth toward skillful "whole" performance rather than incremental mastery of discrete skills, candidates in the secondary mathematics education graduate programs demonstrate expertise as they develop, refine, and enhance their knowledge and skills to improve the learning of all students in grades 6-12.

Stakeholder's Satisfaction With the Program

Data from graduate and employer surveys administered annually by the University System of Georgia Board of Regents indicate that stakeholders are highly satisfied with the education programs at CSU. On the graduate survey, graduates are asked to rate their preparation in the areas of content and curriculum; knowledge of students, teaching, and learning; learning environment; classroom, program, and school-wide assessment; planning and instruction; and professionalism. Graduates consistently give high marks (i.e., ratings of Agree or Strongly Agree) on 91% or more of the items surveyed. Since 2008, the overall range of agreement to survey items was 76% to 100%.

Employers of CSU prepared teachers complete a similar survey. Since 2008, employers have given high marks (Agree or Strongly Agree) on 94% or more of the items surveyed. The overall range of agreement to survey items was 75% to 100%.

We also receive feedback from principals and teachers through the Mathematics Education Program Advisory Council and the Principals' Roundtable. Feedback from these groups has been very positive overall, and principals frequently contact the Department of Teacher Education when they need to hire math teachers to see if CSU has graduates who could possibly fill those positions.

Section Two - Indicators of Program Quality

In February 2013, a continuing approval review of the Educator Preparation Unit at CSU was conducted by a Board of Examiners (BOE) consisting of representatives from the National

Council for Accreditation of Teacher Education (NCATE) and the Georgia Professional Standards Commission (PSC). The 2008 NCATE Standards and the Georgia 2008 Standards were used to assess the unit and its programs. The BOE judged all standards to be met for the unit and for all initial and advanced programs, including the M.A.T./M.Ed. in Secondary Mathematics Education. There were no areas for improvement cited, and the team noted multiple areas of strength. Following are excerpts from the Institutional Report submitted to NCATE and findings taken from the BOE final report.

II A. Quality of Faculty

· Appropriateness of Faculty Credentials

Unit faculty have doctorates in their areas of expertise. School faculty are licensed in the areas that they teach and supervise. Clinical faculty have recent professional experiences in schools. Evidence indicates that the unit uses best practices in teaching to improve student learning in diverse P-12 classrooms and at the university level.

Unit faculty are highly knowledgeable about the content areas in which they teach. Their instruction emphasizes contemporary research practices and is designed to develop candidate proficiencies in line with professional, state and institutional standards. Unit faculty model good teaching by integrating diversity throughout the curriculum, employing technology and addressing different learning styles. Teaching is regularly assessed at the unit level through student evaluations. Emphasis on teaching quality is a part of the annual review process for both full time and part-time faculty.

· Use of Part Time Faculty

Each semester, the unit calls on skilled practitioners to serve as part-time instructional faculty and/or university supervisors. The combination of full-time and part-time faculty creates a diverse and dynamic teaching staff that appropriately offers a balance between the pedagogical and practical challenges facing today's educators.

University supervisors and clinical faculty are qualified to supervise at the level and/or in the content field where they are assigned. These include a number of talented recent retirees from public schools (both classroom teachers and principals) employed specifically to work with student teachers and interns. All university supervisors, as well as full- and part-time faculty who supervise and evaluate teacher candidates during field experiences, have training in the consistent use of the Model of Appropriate Practice (MAP), the college's performance assessment instrument for initial teacher preparation programs.

Part-time faculty are evaluated annually on teaching and professionalism. As requested in the offsite report, the unit provided examples of evaluation instruments used to evaluate part-time faculty. The unit has implemented a process for the systematic evaluation of part-time faculty. Since 2009, instructional evaluations demonstrate that all part-time faculty meet performance expectations.

Full time and part-time faculty engage in collaborative projects to improve candidate

performance. This is evidenced by a freshman learning community which pairs education foundation courses with English courses designed to improve the level of writing.

· Diversity of Faculty

Candidates in educator preparation programs at CSU participate in multiple learning communities that are diverse in terms of faculty, candidates, and P-12 students. Of the 271 full-time instructional faculty at CSU in fall 2011, 68 (25.1%) were minorities, 154 (56.8%) male, and 117 (43.2%) female. In the COEHP, there were 35 professional education instructional faculty (excluding the Dean and two Associate Deans) who regularly provide instruction for candidates in educator preparation programs. Of those, seven were African-American (20%), one (3%) Hispanic, two (6%) Turkish, and one (3%) Japanese-American. Fourteen (40%) were male and 21 (60%) female. In the COEHP, every effort is made to recruit, hire, and maintain a faculty that is diverse in gender, ethnicity, and race and thus provide an opportunity for all candidates to experience and learn from divergent perspectives.

Data on the diversity of school faculty members who supervise candidates during field experiences and clinical practice were provided. A summary of the diversity of cooperating teachers and teacher demographic data for two partner school systems indicated that for the fall 2011, 59 of 96 (61.5 percent) and during the spring semester of 2012, 68 of 106 (64.2 percent) teachers completed and returned the forms. Out of these two groups, 13 of 127 (10.2 percent) were minorities. Various interviews with faculty and candidates provided evidence of the knowledge and experiences faculty members have to help candidates understand and work with students from diverse groups, including ELL, and students with exceptionalities.

The unit has worked to increase the number of minority faculty. Diverse faculty members have increased as a result of efforts by the unit and university. Evidence provided indicated that candidates have the opportunity to work with diverse school, unit, and other faculty from diverse ethnic, racial, and gender groups. During the poster session it was noted that there were candidates and faculty members from several different minority groups.

· Opportunities for Faculty Development

Unit faculty participate actively in professional development which includes their own further development through workshops and conference participation as well as the facilitation of professional development for both school and other unit faculty. The unit provides sufficient funding to facilitate professional development of faculty and staff. In interviews, faculty consistently confirmed satisfaction with the availability of funding for travel to professional meetings.

The Faculty Center for the Enhancement of Teaching and Learning provides professional development opportunities for faculty. The Center for Quality Teaching and Learning serves as an outreach center offering technology workshops and individual sessions for educators from Preschool through University Faculty, as well as providing technology-training opportunities for community partners. The Distance Learning Design and Delivery Department provides training and support in the design, development, delivery and assessment of instruction via online and distance learning technologies.

UTeach Columbus faculty (math and science education) participate in multiple workshops and conferences related to the implementation of the UTeach program. These professional development activities include training to assist in recruitment, fund raising, and the development and implementation of UTeach courses. The Key Elements of Success for UTeach programs align with the COEHP's conceptual framework in the following ways:

- UTeach courses emphasize best teaching practices by incorporating an inquiry-based approach to teaching and learning. Furthermore, candidates are engaged in early and intensive field experiences, supported by a master teacher, that continue throughout the program.
- The importance of excellence in scholarship is evident in the degree programs that provide strong content preparation (i.e., a major in the content area) as well as professional and pedagogical preparation designed specifically for math and science teachers.
- Professionalism is emphasized in the preparation of candidates to teach in diverse schools.

Though UTeach Columbus is an undergraduate program, the professional development opportunities associated with this program will be beneficial as we consider revisions to the M.A.T./M.Ed. programs.

· Program Improvement Plans

A search is currently underway for a new mathematics education faculty member and program coordinator. A new hire in mathematics education will allow us to use fewer part-time faculty and provide greater consistently in program delivery. Several candidates under consideration are from minority groups and would strengthen the diversity of faculty in the program.

II B. Quality of the Teaching

· Indicators of Good Teaching

Faculty's utilization of best-practice methodology is a special emphasis in educator preparation programs. Some faculty use as their basis for "best practice" the constructs delineated in *Methods That Matter* (Zemelman, Daniels, & Hyde; Heinemann, 2005). This work is a synthesis of recommendations of national professional organizations, including the National Council of Teachers of Mathematics. Other faculty take their cue from an array of scientifically-based methods consistent with No Child Left Behind legislation or constructivist learning theory. Although these views of best practice may differ substantively, the climate among faculty is one that stimulates individual professors to think seriously about their own practice in light of their personal (and emerging) understanding of teaching strategies best suited to both teacher candidates and learners in school systems served by CSU. *Perspectives in Learning*, the COEHP's professional journal, frequently publishes articles by faculty and students that highlight best-practice pedagogy.

Unit faculty are highly knowledgeable about the content areas in which they teach. Their instruction emphasizes contemporary research practices and is designed to develop candidate proficiencies in line with professional, state and institutional standards. Unit faculty model good teaching by integrating diversity throughout the curriculum, employing technology and

addressing different learning styles. Teaching is regularly assessed at the unit level through student evaluations. Emphasis on teaching quality is a part of the annual review process for both full time and part-time faculty.

· Indicators of Good Advising

CSU's Graduate School and the COEHP Office of Graduate Studies oversee admission and orientation of graduate students. Professional Education Program Coordinators provide advisement to graduate students while the SAFE Office provides assistance with certification requirements.

Individuals seeking initial teacher certification through a Master of Arts in Teaching (MAT) program must have their transcripts evaluated to determine the courses needed for certification. To initiate this process, individuals must submit copies of all their transcripts to the College of Education and Health Professions Student Advising and Field Experiences Office (SAFE) and request a transcript evaluation in the intended area of certification. The SAFE Office sends the transcripts to the appropriate program coordinator or advisor, who then reviews the individual's previous coursework to determine if any of those courses can count toward certification. When the evaluation is complete, it is submitted to the Department of Teacher Education Office, and the individual is notified by letter and can set up an appointment with his/her advisor to discuss a program of study.

Prospective MAT students must also apply for admission to the university. Individuals desiring to enroll in graduate courses must apply for graduate admission and be admitted to a College of Education and Health Professions (COEHP) graduate program with regular or provisional admission status. Prospective students are referred to the CSU Admissions Office in University Hall or to the Admissions website at **http://admissions.columbusstate.edu/index.php**. Additional information on MAT programs is available at **http://te.columbusstate.edu/degrees.php**.

Individuals with a clear renewable teaching certificate may apply for admission to the MEd, EdS, or EdD degree program. Once admitted to the university as a graduate student, a Graduate Orientation hold is placed on the student's account. The student must complete the online orientation, print the advising form at the end of the orientation and have his/her advisor sign the form after s/he has been advised, and submit the form to COEHP Coordinator of Graduate Records so that the hold can be removed. This must be completed before the student will be able to register for classes. Additional information about COEHP graduate degree programs is available at **http://coehp.columbusstate.edu/degrees.php**.

When a student completes the program of study for a degree, the student's advisor is asked to complete a degree progress sheet showing that the student has met all program requirements. Faculty maintain an updated degree progress sheet for each advisee to ensure that all requirements are being met. Notes from advising sessions are included on the degree progress sheet. Electronic copies of degree progress sheets are kept on file on the P-drive so that the department chair may access these files as needed to assist students.

Advisors are familiar with important deadlines (registration, course withdrawal, graduation, etc.)

and inform their advisees appropriately. They are also familiar with the university appeals process and assist advisees, as needed, in resolving disputes. Matters related to student conduct are handled through the Office of the Dean of Students. Academic appeals are handled at the department level. When necessary, department decisions may be appealed to the appropriate Dean and then to the Provost.

· Departmental Reward System

Full time unit faculty undergo an annual review of performance during which teaching, scholarship, and service are evaluated. Performance evaluations are intended to improve the performance of the faculty member under review and are also used in making decisions regarding merit pay.

In recognition of the competence and expertise of COEHP faculty, three new awards were created in fall 2007 to bring greater attention to excellence in teaching, scholarship, and service-based leadership. Every spring, there is a college-wide vote on nominated finalists. Annually, each award has at least three qualified candidates who are nominated by administrators, students, and colleagues for their competence and professional merit.

· Program Improvement Plans

Teaching and advising is a strong component of the mathematics education programs. When a new hire is made, a faculty mentor will be assigned to the person to help guide him or her in establishing good teaching and advising practices.

II C. Quality of Research and Scholarship

· Opportunity for Student Research Projects

The M.A.T./M.Ed. programs require candidates to complete a culminating research project demonstrating that they are meeting national, state, and institutional standards as they synthesize and apply the knowledge and skills developed in their course of studies. Data from the Graduate Model of Accomplished Practice (GMAP), the college's performance assessment instrument for graduate students in teacher education, and culminating projects show that candidates understand and can apply theories related to student learning and that they analyze student, classroom, and school performance data and make data-driven decisions. In 2010-2011, all candidates met or exceeded expectations on all components of the GMAP, with 54% or more exceeding expectations.

Interviews with candidates and faculty confirmed that faculty regularly involve candidates in research which results in presentations at professional meetings and publications in refereed journals. In mathematics education, graduate students have presented at conferences such as the Georgia Council of Teachers of Mathematics Annual Conference. M.A.T. and M.Ed. students also present their culminating research project at the Teacher Education Graduate Symposium held each semester.

· Faculty Publications, Presentations, and Grants

CSU's professional education faculty is productive in terms of research, publications, and presentations. For example, in 2010-2011, COEHP professional education faculty published 1 book, 1 book chapter, 24 refereed journal articles, and 4 non-refereed journal articles. In addition, faculty wrote 23 major reports and produced 19 other types of scholarly work including grant proposals and manuscript reviews. Several faculty members are published in the COEHP peer reviewed journal, *Perspectives in Learning*. The editorial board for *Perspectives in Learning* includes four professional education faculty members with one serving as the journal's editor. The journal, which was first published in spring 2000, features scholarly contributions from faculty and from graduate and undergraduate students in collaboration with faculty, peers, and community partners. All publications relate to teaching and learning, and manuscripts may be submitted for review by authors both within and outside the university. See Exhibit 5.3.d #9 (i) for samples of faculty publications.

Much of the research generated by professional education faculty members is shared at professional conferences. Faculty present independently, collaboratively, and with their students at local, state, regional, and national/international conferences or meetings. During the 2010-2011 academic year, professional education faculty presented at 34 international/national conferences, 32 regional/state conferences, and 23 local conferences or meetings. See Exhibit 5.3.d #9 (ii) for samples of faculty presentations.

Faculty have also been successful in receiving external funding to support educator preparation. In 2010-2011, professional education faculty submitted 22 grant proposals with 13 being funded for annual awards totaling approximately $564,393. Early in AY 2011-2012, CSU was awarded two large five-year grants (UTeach Grant worth $1.4 million and Robert Noyce Teacher Scholarship Grant worth $1.2 million) to support math and science teacher preparation. These two grants are a collaborative effort between professional education faculty in the COEHP and math and science faculty in the College of Letters and Sciences. See Exhibit 5.3.d #9 (i) for samples of faculty grant proposals.

Unit faculty actively engage in research. Interviews with candidates and faculty confirmed that faculty regularly involve candidates in research which results in presentations at professional meetings and publications in refereed journals. Unit faculty are successful in securing internal and external funding for their research including funding from the Ivey Foundation, UTeach Grant ($1.4 million), and ARRA Early Head Start ($2 million). The promotion and tenure process values and rewards active scholarship as demonstrated in the Rubric for Annual Performance Review.

· Program Improvement Plans

The mathematics education program has been successful in securing grants to support undergraduate teacher preparation. We plan to look for other grants to support our graduate students, especially M.A.T. students who are seeking initial teacher certification.

II D. Quality of Service

· Activities to Enhance Program, Department, College, Institution, Community and/or Region

Unit faculty are actively engaged in service to the university, the profession and the community. Unit faculty serve in leadership roles in state and national professional associations and agencies.

CSU professional educator preparation faculty display extensive and distinguished service on campus, in the community, in the Georgia/Alabama region, and nationally. Such service is highly consistent with the unit's mission and with the Conceptual Framework, serving the greater purpose of positively affecting student achievement, whether the achievement of teacher candidates, counselors, and administrators or the achievement of children and adolescents. See Exhibit 5.3.e for examples of faculty service and collaborative activities.

· Program Improvement Plans

Quality of service is very strong, and no improvements are needed at this time. Mathematics education faculty will continue to engage in service to the university, the profession, and the community.

II E. Quality of Faculty and Student Achievements

· Faculty Honors

In recognition of the competence and expertise of COEHP faculty, three new awards were created in fall 2007 to bring greater attention to excellence in teaching, scholarship, and service-based leadership. Although the award selection was originally designed to be the privilege of the Faculty Qualifications, Performance and Development committee, it became evident during the initial call for nominations that our college has many qualified and exemplary professionals based on the number of nominating letters. Every spring, there is a college-wide vote on nominated finalists. Annually, each award has at least three qualified candidates who are nominated by administrators, students, and colleagues for their competence and professional merit. Two years ago, a mathematics education faculty member received the excellence in teaching award.

· Student Honors

Outstanding graduate students in each education program are honored annually at the CSU Honors Convocation and at the COEHP Awards Ceremony. From time to time, education students are honored with scholarship awards to support their continuing education. For example, in 2012, one of our graduate students was awarded a Future Leader Initial NCTM Annual Meeting Award. This award allowed her to attend the NCTM Annual Conference

· Graduate Achievements (Licensure, Certification, Admission to Graduate School, Job Offers, etc.)

Graduates of the M.A.T. program in Secondary Mathematics Education are in high demand by local school systems. Because mathematics is a critical needs area, many M.A.T. students are offered teaching positions prior to admission to the program. After completing the M.A.T. degree program, they receive a clear renewable teaching certificate for Georgia.

The M.Ed. leads to a certificate upgrade and subsequent pay raise for teachers completing the degree program. Teachers develop further expertise in mathematics and mathematics education by completing the M.Ed. program of study.

II F. Quality of Curriculum

· Relationship Between Program's Curriculum and Its Outcomes

The M.A.T. and M.Ed. programs in Secondary Mathematics Education prepare highly qualified mathematics teachers who possess the knowledge, skills, and dispositions necessary to promote high levels of learning for all students in grades 6-12. In mathematics content courses, mathematics education courses, professional courses, and field experiences, candidates have multiple opportunities to demonstrate excellence in teaching, scholarship, and professionalism. Creating opportunities for candidates to demonstrate excellence in these three areas is consistent with the Educator Preparation Conceptual Framework and is reflected in the broad goals of the secondary mathematics education programs.

M.A.T. candidates seeking initial teacher certification, develop proficiency in applying the knowledge, skills, and dispositions to impact P-12 student learning. They also begin to develop expertise in their teaching field through the completion of several advanced level courses taken with other M.Ed. candidates.

Candidates pursuing a M.Ed. degree in Secondary Mathematics Education develop and demonstrate *expertise* as they progress through the program. Graduates of the program are prepared to apply their expert knowledge of mathematics and mathematics teaching and learning in grade 6-12 classrooms, thus helping to meet the demand for highly qualified mathematics teachers.

The M.A.T. and M.Ed. programs in Secondary Mathematics are closely aligned with CSU’s mission of achieving academic excellence and preparing individuals for a life of success, leadership, and responsibility through community awareness, engagement, and service to others. Focusing on growth toward skillful “whole” performance rather than incremental mastery of discrete skills, candidates in the secondary mathematics education graduate programs demonstrate expertise as they develop, refine, and enhance their knowledge and skills to improve the learning of all students in grades 6-12.

· Incorporation of Technology

Faculty have access to computer and printing resources, as well as to the most recent developments in technology including interactive boards, personal response systems (clickers), iPads, and classroom management software. Campus support services provide extensive library and technology support services. New faculty and adjunct faculty have access to orientations and seminars in teaching and learning and technology. Campus support services provide extensive technological support for distance learning and online course delivery systems.

Faculty, candidates, and staff have access to state-of-the-art facilities, multimedia classrooms, and up to date technology, which is used to help them advance unit objectives. The unit has developed an innovative model for providing advanced graduate coursework exclusively through on-line technology. Existing technology and data management will be enhanced by the implementation of the new LiveText data management system.

· Utilization of Multidisciplinary Approaches

Candidates in secondary education programs take several common core courses and a culminating inquiry course that cut across disciplines (i.e., English, mathematics, science, social sciences). As candidates work together on various projects and participate in class discussions, they have multiple opportunities to examine and critique educational theories and best practices from a multidisciplinary perspective.

The UTeach Columbus program integrates the disciplines of mathematics and science. Though this is an undergraduate program, we are beginning to explore ways to incorporate a similar approach in our graduate programs. Secondary education program coordinators frequently collaborate on program planning and assessment and have briefly discussed the possibility of designing a new multidisciplinary course for graduate students. With the implementation of the new Common Core State Standards and Next Generation Science Standards, there will be a greater need to prepare teachers who can use multidisciplinary approaches in their teaching.

· Utilization of Multicultural Perspectives

The Educator Preparation Conceptual Framework clearly articulates the unit's commitment to diversity. Excellence in teaching embodies the use of best practices to improve student learning in diverse P-12 classrooms as well as at the university level. Excellence in scholarship embodies the seeking out and exploring of multiple viewpoints, embracing diversity as it enriches our intellectual lives and positively impacts our professional performances. Scholars engage in a life-long learning process, continually acquiring, integrating, and applying knowledge and skills to achieve excellence in teaching and to improve the learning of all students. Professionalism is demonstrated through in-depth knowledge of a field of study and an effort to meet the highest standards set forth by professional organizations. These standards include a commitment to diversity.

A commitment to diversity is also reflected in the 2011 InTASC Standards and NBPTS propositions upon which the Conceptual Framework is based. Curricula, instruction, field

experiences, clinical practice, and assessments are aligned with these principles and standards and reflect a commitment to diversity in the following ways:

- All COEHP syllabi include a statement regarding our commitment to diversity.
- The diversity proficiencies initial candidates are expected to meet include the following dispositions: Interacts appropriately and positively with others; Treats others with courtesy, respect and open-mindedness; and Displays the ability to work with diverse individuals. (Exhibit 1.3.e #1)
- The Model of Appropriate Practice (MAP) (Exhibit 1.3.c.1 (i)), the unit's performance assessment instrument used in all initial programs, is aligned with the 2011 InTASC Standards (Exhibit I.5.c #6) and includes the following diversity proficiencies initial candidates are expected to meet: 1b: Demonstrating knowledge of students; 1c: Selecting instructional goals (i.e., suitability for diverse students); 1d: Demonstrating knowledge of resources (i.e., resources for students); 2a: Creating an environment of respect and rapport; 2b: Establishing a culture for learning; 3a: Communicating clearly and accurately; 3b: Using questioning and discussion techniques; 3c: Engaging students in learning; 3e: Demonstrating flexibility and responsiveness (i.e., response to students); and 4c: Communicating with families.
- The diversity proficiencies advanced candidates are expected to meet include: Interacts appropriately and positively with others, while appreciating and valuing human diversity; and Demonstrates the belief that all students can learn. (Exhibit 1.3.e #2 Graduate Dispositions)
- The Graduate Model of Accomplished Practice (GMAP) (Exhibit 1.3.c.2 (i)), the unit's performance assessment instrument in advanced teacher preparation programs, is aligned with NBPTS propositions (Exhibit I.5.c #7) and includes the following diversity proficiencies advanced candidates are expected to meet: 1a: Recognizes individual differences in students and adjusts teaching; 1b: Treats all students equitably; 1c: Designs lessons to match student abilities and foster interest; 1d: Provides evidence of teaching to develop multiple domains; 1e: Understands how students develop and learn; 2b: Presents lesson and content so that students learn in a variety of ways; 3b: Uses multiple strategies to meet goals; 3c: Motivates students to be engaged in learning; 3d: Creates an effective learning environment; 5b: Collaborates with parents; and 5c: Uses community resources.

In keeping with our commitment to diversity, the faculty designed curricula and experiences aimed at increasing all education candidates' knowledge of and sensitivity to the diverse nature of P-12 students (Exhibit 4.3.b). Educator preparation faculty believe teachers must be able to work successfully with a diverse population of colleagues and learners. Similarly, the faculty believe skillful beginning teachers are able to ensure that all adolescents with whom they work achieve significant academic growth.

At the graduate level, an analysis of syllabi provides evidence that faculty address diversity in M.Ed. and Ed.S. foundations and research courses as well as through major course requirements such as unit plans, case studies, and action research projects in school library media, school counseling, leadership, and an array of teaching fields. For example, in EDUF 6115 Educational Psychology, candidates examine the interrelationship between motivation, learning, and teaching with an emphasis on application to the needs of diverse learners. Other examples showing how candidates are prepared to work with diverse groups of students are provided in Exhibit 4.3.b #2

& 3. At the graduate level, candidate performance is assessed in at least one required course (Exhibit 2.3.d #3) in each program using the GMAP and Graduate Dispositions. Candidates reflect on data from these evaluations and develop plans to improve their knowledge, skills, and dispositions for helping all students learn.

· Program Improvement Plans

The Mathematics Education Program Advisory Council will examine the M.A.T. and M.Ed. program requirements to make sure they are aligned with the new Common Core Georgia Performance Standards for Mathematics, in an effort to help prepare teachers to teach with the new standards. The Council is also examining math course requirements in the M.Ed. program to determine whether or not changes are needed in order to provide candidates with a broader and more in-depth preparation in advanced mathematics.

II G. Quality of Facilities and Equipment

· Availability of Classroom and Laboratory Space

Candidates have access to facilities on main campus to support their development as professional educators. Facilities used for educator preparation include 18 multimedia classrooms, three computer labs, and a conference center with three sophisticated classroom/laboratories equipped with interactive white boards and advanced computers capable of digital media productions.

· Availability of Equipment

Facilities used for educator preparation include 18 multimedia classrooms, three computer labs, and a conference center with three sophisticated classroom/laboratories equipped with interactive white boards and advanced computers capable of digital media productions. Computers in specified classrooms also include a variety of math software (e.g., Geometer's Sketchpad, Geogebra, Tinkerplots) for use in instruction in mathematics education courses. Furthermore, candidates now have enhanced opportunities to work with state-of-the-art technology in P-12 schools due to technology resources and training provided for participating schools and teachers through a DoDEA grant. Resources include Bretford Carts, tablet computers, iPod touches, SMARTboards, iPevo, digital microscopes and projectors, slates, and student response units. In addition, faculty and candidates have access to the Columbus Regional Mathematics Collaborative (CRMC) lending library and teacher resource center stocked with resources to enhance mathematics instruction.

· Program Improvement Plans

The Department of Teacher Education and College of Education and Health Professions Dean's Office will continue to provide equipment and facilities to support the Secondary Mathematics Education programs.

Section Three - Indicators of Program Productivity

III A. Enrollment in Program for Past 5 Years

The enrollment patterns for the M.A.T. and M.Ed. programs in Secondary Mathematics are shown in Table 3.1.

Table 3.1 Number of Declared Majors in M.A.T. and M.Ed. Secondary Mathematics

	2007-08	2008-09	2009-10	2010-11	2011-12	5 year average
MAT						
Full-Time			4	4	1	3
Part-Time			8	9	7	8
Total			*12*	*13*	*8*	*11*
MEd						
Full-Time	3	6	1	1	1	2
Part-Time	8	13	11	14	6	10
Total	*11*	*19*	*12*	*15*	*7*	*13*
Total MAT/MEd			*24*	*28*	*15*	

Prior to 2009-2010, candidates seeking initial certification at the master's level completed the traditional M.Ed. program in addition to initial certification coursework. The total number of majors in the M.Ed. program in 2007-08 and 2008-09 included those seeking initial teacher certification as well as certified teachers seeking an advanced degree. In 2008-2009, a Master of Arts in Teaching (M.A.T.) program was developed to provide a streamlined course of study for individuals seeking initial teacher certification. With this change, the total number of students enrolled in master's degree programs in secondary mathematics increased from 19 to 24 in 2009-2010 and then to 28 in 2010-11, an increase of 47% from 2008-09 to 2010-11. One reason for this increase might be the streamlined M.A.T. program that allows candidates who are seeking initial certification to complete their degree in a more timely manner. Because of the streamlined coursework, the M.A.T. is also a more attractive option than the post-baccalaureate teacher certification route that some candidates chose in the past. In addition, M.Ed. admission requirements were changed in 2008-2009, and the GRE was no longer required for entry into the program for teachers with a clear renewable teaching certificate.

In 2011-2012, enrollment in M.A.T. and M.Ed. Secondary Mathematics Education programs decreased from a combined total of 28 in 2010-11 to 15, a decrease of 46%. A similar decline occurred in all other secondary education programs, with the exception of the M.A.T. in Secondary English, but the percentage decrease was lower in the other programs. Reasons for this decline in enrollment are not clear but may be partly due to economic conditions and/or additional demands placed on teachers by school systems with increased accountability measures. Further study is needed to determine the reasons for this decline in enrollment and to see whether or not it will become a trend.

Table 3.2 shows the total enrollments in M.A.T. and M.Ed. secondary education programs housed in the Department of Teacher Education at CSU. Since 2007-2008, enrollment in the M.A.T./M.Ed. Secondary Mathematics Education programs has been comparable to enrollment

in other graduate secondary education programs. In average enrollment, Secondary Mathematics Education ranks second among the M.A.T./M.Ed. programs listed in the table.

Table 3.2 Number of Declared Majors in M.A.T./M.Ed. Programs

		2007-08	2008-09	2009-10	2010-11	2011-12	5 year average
Secondary English	MAT			18	19	20	19
	MEd	29	26	18	18	16	21
Secondary Mathematics	**MAT**			**12**	**13**	**8**	**11**
	MEd	**11**	**19**	**12**	**15**	**7**	**13**
Secondary Science	MAT			7	7	5	6
	MEd	18	15	10	5	3	10
Secondary Social Science	MAT			6	8	7	7
	MEd	9	16	13	10	8	11
Totals	MAT			*43*	*47*	*40*	*43*
	MEd	*67*	*76*	*53*	*48*	*34*	*55*
	Combined	*67*	*76*	*96*	*95*	*74*	*82*

The Mathematics Program Advisory Committee (PAC) oversees the M.A.T./M.Ed. programs in Secondary Mathematics and works to improve the curriculum, courses, and resources offered to teachers. Currently, we are revising the mathematics requirements in the M.Ed. program in an effort to offer content coursework that is more relevant to teachers. We will monitor enrollment numbers to see if these changes attract more teachers into the program.

III B. Degrees Awarded Over Past 5 Years

As indicated in Table 3.3, the number of M.A.T. and M.Ed. degrees conferred each year in Secondary Mathematics is small but has increased since 2007-2008. The five year average is comparable to Secondary Science and Secondary Social Science programs but less than Secondary English.

Table 3.3 Number of Degrees Conferred

		2007-08	2008-09	2009-10	2010-11	2011-12	5 year average
Secondary English	MAT		3	7	5	8	6
	MEd	12	6	6	11	6	8
Secondary Mathematics	**MAT**			**1**	**2**	**4**	**2**
	MEd	**0**	**3**	**1**	**3**	**5**	**2**
Secondary Science	MAT			1	4	1	2
	MEd	6	3	5	2	0	3
Secondary Social Science	MAT		2	0	2	6	3
	MEd	0	2	6	3	4	3

III C. Comparison With CSU & University System of Georgia Programs

As indicated in Table 3.4, among the eleven USG state universities that offer master's degrees in secondary education, CSU ranks fourth in average number of degrees conferred. Plans for improving the position of CSU's secondary education programs among comparable USG programs include enhanced recruitment and retention efforts, improved services and support for secondary education majors, and continued support for students and classroom teachers through a variety of professional development activities.

Table 3.4 Master's Degrees Awarded in Secondary Education Programs at USG State Universities

Institution	2006-07	2007-08	2008-09	2009-10	2010-11	5 year average
Albany State University	7	4	1	2	5	4
Armstrong Atlantic University	4	0	0	0	0	1
Augusta State University	10	3	0	0	0	3
Clayton College & State University	0	0	0	0	6	1
Columbus State University	**20**	**18**	**19**	**27**	**32**	**23**
Fort Valley State University	0	0	0	0	0	0
Georgia College & State University	57	50	70	101	90	74
Georgia Southwestern State University	4	4	3	1	0	2
Kennesaw State University	0	18	36	55	90	40
North Georgia College & State University	23	29	21	32	20	25
Savannah State University	0	0	0	0	0	0
Southern Polytechnic State University	0	0	0	0	0	0
State University of West Georgia	16	11	13	11	10	12

III D. Retention Rates

Retention rates have fluctuated over the last five years. In graduate programs, students may take one or more semesters off because of teaching duties or family obligations. Some students have difficulty with the required mathematics courses and do not continue in the program or change their majors. Many graduate students have been out of school for several years, making it difficult to jump right into a graduate level mathematics course that builds on the knowledge and skills acquired in an undergraduate mathematics program. We are currently reviewing the mathematics requirements in the M.Ed. program to see if changes are needed to make the

curriculum more relevant for teachers or if additional support systems may be necessary to enable students to be successful in the upper level mathematics courses.

Table 3.5 Retention Rate

	Fall 2006		Fall 2007		Fall 2008		Fall 2009		Fall 2010	
	# in cohort	Number returning in Fall 2007	# in cohort	Number returning in Fall 2008	# in cohort	Number returning in Fall 2009	# in cohort	Number returning in Fall 2010	# in cohort	Number returning in Fall 2011
Secondary English	12	6 (50%)	14	11 (78.6%)	6	2 (33.3%)	17	15 (88.2%)	11	7 (50%)
Secondary Math	**2**	**2 (100%)**	**6**	**5 (83.3%)**	**11**	**5 (45.5%)**	**9**	**8 (88.9%)**	**8**	**4 (50%)**
Secondary Science	2	2 (100%)	7	4 (57.1%)	5	5 (100%)	7	5 (71.4%)	4	4 (100%)
Secondary Soc Sci	2	2 (100%)	3	3 (100%)	7	4 (57.1%)q	7	7 (100%)	5	5 (100%)

III E. Student Learning Indicators (using a variety of data sources)
Key assessments for M.A.T. candidates include the following:

- GPA
- Georgia Assessments for Certification of Educators (GACE) tests
- Model of Appropriate Practice (MAP) for Teacher Candidates, a teaching performance assessment
- Dispositions
- Documenting Student Performance

Key assessments for M.Ed. candidates include the following:

- GPA
- Graduate Model of Accomplished Practice (GMAP), a teaching performance assessment
- Dispositions Assessment
- Research project

Data indicate that M.A.T. candidates know the content they teach and can explain important principles and concepts. Average GPAs from 2009-2012 ranged from 3.38-3.94 at program exit. Also, the pass rate on the Georgia Assessment for Certification of Educators (GACE) mathematics tests from 2008-2011 was 100%. The GACE is used to assess the knowledge and skills of prospective Georgia public school secondary mathematics teachers. The tests are criterion-referenced, objective-based assessments designed to measure a candidate's knowledge and skills in relation to established standards, and are aligned with National Council of Teachers of Mathematics standards for secondary mathematics programs and with state standards for the P–12 student curriculum (Georgia Performance Standards). The passing score for each test is established by the Georgia Professional Standards Commission and is based on the professional judgments and recommendations of Georgia educators.

Teacher candidates in the M.A.T. Secondary Mathematics program understand the relationship of content and content-specific pedagogy and can apply the professional and pedagogical knowledge and skills delineated in the standards to facilitate learning. CSU's Model of Appropriate Practice (MAP) is used to assess planning and preparation, classroom environment,

instruction, and professional responsibilities. An analysis of MAP data over the last three years (2009-2012) showed that on each component, 90% or more of the candidates evaluated prior to entering clinical practice met or exceeded expectations, while 100% of the candidates evaluated at exit from clinical practice met or exceeded expectations.

Data show that teacher candidates focus on student learning. They assess and analyze student learning, make adjustments to instruction, and monitor student progress. Candidates are evaluated throughout their field experiences on student learning related MAP components. During clinical practice, all candidates must complete the Documenting Student Performance (DSP) activity wherein candidates design and deliver a unit of instruction, assess P-12 student performance on pre- and post-tests, analyze the results of the assessment, and provide a plan for intervention. An analysis of data from student learning related components of the MAP at exit from clinical practice revealed that the percentage of candidates rated as meeting or exceeding expectations was 100%.

Candidates in M.Ed. programs in secondary education (English, math, science, social science) have an in-depth knowledge of the content they teach. Average GPAs by program are above 3.0 at program exit, and program completers have no more than two grades of C in their program of study (all other grades must be A's and B's). Culminating research projects provide additional evidence of content knowledge as candidates synthesize and apply the knowledge and skills developed in their course of study.

Candidates demonstrate an in-depth understanding of the content of their field and the theories related to pedagogy and learning. They select and use a broad range of strategies and technologies that promote student learning. Candidates are assessed by instructors in selected courses using the Graduate Model for Accomplished Practice (GMAP). Data from GMAP evaluations show that at program exit, all candidates met or exceeded expectations on all components of the GMAP. In addition, all candidates met or exceeded expectations on all components of the Dispositions Assessment.

All M.A.T. and M.Ed. candidates in the secondary education programs complete a culminating research project. Data from these culminating projects show that candidates understand and can apply theories related to student learning and that they analyze student, classroom, and school performance data and make data-driven decisions. All candidates met or exceeded expectations on the components of the GMAP related to student learning.

III F. Graduation Rate of Program

Table 3.6 shows the three-year graduation rates for M.A.T./M.Ed. Secondary Education programs.

Table 3.6 Three-Year Graduation Rate (*)

	Fall 2005		Fall 2006		Fall 2007		Fall 2008		Fall 2009	
	# in cohort	Graduating by 2008	# in cohort	Graduating by 2009	# in cohort	Graduating by 2010	# in cohort	Graduating by 2011	# in cohort	Graduating by 2012
Secondary English	5	3 (60%)	12	6 (50%)	14	11 (78.6%)	6	0 (0%)	17	11 (64.7%)
Secondary Math	**2**	**1 (50%)**	**2**	**2 (100%)**	**6**	**1 (16.7%)**	**11**	**3 (27.3%)**	**9**	**4 (44.4%)**

	Fall 2005		Fall 2006		Fall 2007		Fall 2008		Fall 2009	
Secondary Science	3	0 (0%)	2	1 (50%)	7	1 (14.3%)	5	4 (80%)	7	4 (57.1%)
Secondary Soc Sci	3	1 (33.3%)	2	2 (100%)	3	2 (66.7%)	7	3 (42.9%)	7	6 (85.7%)

* The cohorts above are degree-seeking graduate students who entered a CSU graduate program in the fall (or previous summer) semester. Graduation rate calculated based on number of students completing program within three-year time period.

Over the last five years, three-year graduation rates for M.A.T./M.Ed. programs in secondary math have been 50% or below, with the exception of the Fall 2006 cohort. Some candidates, particularly those in the M.A.T. program, may take more than three years to complete their degree because of additional math coursework requirements. Candidates whose bachelor's degrees are in areas other than mathematics, mathematics education, or a closely related field must often take a significant number of prerequisite mathematics courses, thus adding to the length of their program of study. Also, most master's degree candidates are part-time students who are teaching full-time. Their teaching schedules and other obligations may not allow them to complete all required coursework in three years. In recent years, there have been several candidates who had to repeat math courses due to low grades or had to sit out for a couple of semesters before returning to complete their degree. The Department of Teacher Education and Department of Mathematics are currently working together to revise the math requirements in our graduate secondary mathematics education programs in an effort to make content coursework more relevant for teachers. We hope these changes will help to improve graduation rates.

III G. Cost Effectiveness of Instructional Delivery

As shown below in Tables 3.7 and 3.9, the budget for the Department of Teacher Education represented approximately 6-7% of the total instructional costs for Columbus State University (CSU) from 2008 to 2010. In Fall 2011, 911 (11%) of the 8307 students enrolled at CSU were majoring in a program offered in the Department of Teacher Education. In addition, the department budget helps support undergraduate teacher education programs (i.e., secondary education, foreign language, and fine arts) housed in other colleges. This suggests that teacher education programs as a whole are cost effective.

From 2008 to 2012, the Department of Teacher Education budget was supplemented by grant funds ranging from approximately $42,000 to $132,000. During this time period, there was a 15% decrease in state funding for the department, even though the number of education majors and credit hour production increased. For graduate secondary education programs alone, enrollment increased by 10% from 2008 to 2012 (see Table 3.2), and credit hour production increased by approximately 23% (see Table 3.8).

Table 3.7 Department of Teacher Education Budget

	2008	2009	2010	2011	2012
State Funds	$2,340,134	$2,162,502	$1,993,635	$1,823,652	$1,977,860
Grant Funds	$41,841	$61,223	$131,963	$129,421	$102,877
Total	*$2,381,975*	*$2,223,725*	*$2,125,598*	*$1,953,073*	*$2,080,737*

Table 3.8 Secondary Education Credit Hour Production

	2007-08	2008-09	2009-10	2010-11	2011-12	5 year average
5000 Level Courses	5	0	27	21	9	12
6000 Level Courses	499	459	771	704	590	605
7000 Level Courses	22	55	42	32	46	39
Total	*526*	*514*	*840*	*757*	*645*	*656*

Table 3.9 Total Instructional Costs per Credit Hour and Headcount at CSU

	2008	2009	2010
Instructional Costs	$31,868,466	$31,193,232	$34,596,532
Total Credit Hours Generated	164,732	171,280	178,470
Total Headcount	7,590	7,953	8,179
Cost per Credit Hour	$193	$182	$194
Cost per Headcount	$4,199	$3,922	$4,230

As shown in Table 3.10, average course enrollment in graduate courses for secondary education majors is below 15. Required mathematics education courses in the M.A.T. and M.Ed. Secondary Mathematics programs are offered on a one- or two-year cycle, in order to make them more cost-effective. In addition, the programs require some of the same courses (e.g., Foundations of Education, Educational Psychology, Action Research, Trends and Issues, Teacher Inquiry, etc.) that are required in other M.A.T. and M.Ed. programs. These courses have higher enrollments and thus help to contribute to the cost-effectiveness of the department.

Table 3.10 Average Course Enrollment - Fall Semester

	2007-08	2008-09	2009-10	2010-11	2011-12	5 year average
5000 Level Courses	1	0	5	7	2	3
6000 Level Courses	13	11	13	10	10	11
7000 Level Courses	6	9	6	3	3	5
Overall Average	*11*	*12*	*12*	*9*	*9*	11

Number of Faculty

	2007-08	2008-09	2009-10	2010-11	2011-12	5 year average
Full-Time Faculty	**3**	2	4	2	4	3
Part-Time Faculty	2	3	1	3	1	2

Section Four - Program Viability

IV A. Summary of Program's Viability

The M.A.T. and M.Ed. Secondary Mathematics Education programs at CSU are viable. As indicated by the evaluation of the NCATE/PSC Board of Examiners in February 2013, the quality of the program is very strong. All NCATE/PSC standards were judged to be met for all initial and advanced programs. There were no areas for improvement and multiple strengths were

cited. In addition, program quality is enhanced by special opportunities available at CSU. Mathematics education majors have access to resources and professional development opportunities offered through the Columbus Regional Mathematics Collaborative (CRMC).

The viability of the program is also ensured by the sharing of resources among all secondary mathematics programs at CSU. Graduate mathematics courses at the 5000-level also enroll undergraduates on a cross-listed basis. Furthermore, the College of Education, Mathematics Department, CRMC, and P-12 teachers work collaboratively in the design and implementation of the secondary mathematics programs at all levels (B.A, M.A.T., M.Ed., and Ed.S.). Representatives from each of these groups work together to make improvements to the mathematics education programs at CSU and to impact mathematics education in our region. The M.A.T. and M.Ed. programs in secondary mathematics are a valuable resource for teachers in our region who want to grow professionally and gain expertise in the field of mathematics education. Students in the M.Ed. program take what they learn and apply it in their own classrooms to help their students learn mathematics.

Graduates of the M.A.T. and M.Ed. Secondary Mathematics programs are also a valuable resource for our undergraduate program in secondary mathematics. A substantial number of program graduates teach in systems served by CSU, especially Muscogee County. Our graduate programs in secondary mathematics have helped to create a cadre of leaders within our Partner School Network. Graduates often serve CSU as pre-student teaching cooperating teachers and cooperating teachers for student teaching. They are a valuable asset in assisting with the development of our undergraduates.

Though small, the number of M.Ed. Secondary Mathematics degrees conferred by CSU has been fairly consistent over the past four years and is comparable to the number of degrees conferred by other USG state universities. As the only USG institution within a 90 mile radius of Columbus that offers a master's degree in secondary mathematics, CSU provides math teachers in its service region an opportunity to gain expertise in mathematics education. This is an opportunity that they might not have if CSU did not offer this degree program. With the critical shortage of highly-qualified mathematics teachers, we need to provide every possible opportunity for teachers to grow professionally and enhance their knowledge and skills in teaching mathematics.

Recommendation for future of program: *Maintain the Program at the Current Level.* The program quality is very strong, but the number of degrees conferred each year is small. Because of decreasing interest in mathematics as students progress through high school and college, few students take the higher level mathematics courses needed to prepare one for a career in mathematics or mathematics education. We are working to change this through various STEM initiatives on campus (UTeach Columbus, Noyce Scholarship Program, NeXtGen STEM). Through these efforts, we hope to attract more students into the undergraduate mathematics and mathematics education programs so that we have a larger pool of candidates from which to recruit for our M.A.T. and M.Ed. programs. We are also examining the M.A.T. and M.Ed. curriculum to see where changes may be needed to make the programs more relevant for and attractive to teachers.

IV B. Summary of Program Improvement Plan

The Mathematics Program Advisory Council (PAC) oversees the M.A.T. and M.Ed. programs in Secondary Mathematics and works to improve the curriculum, courses, and resources offered to teachers. Recommendations to improve program productivity are as follows.

Goals	Projected Timeline	Resource Allocations
Align the curriculum with the new Common Core Georgia Performance Standards for Mathematics.	2013-2014	Personnel resources
Examine math course requirements in the M.Ed. program to determine whether or not changes are needed to make the program more relevant and attractive to teachers.	2013-2014	Personnel resources
Hire a new mathematics education faculty member and program coordinator.	Fall 2013	State funding for faculty line
Attract more students into the undergraduate mathematics and mathematics education programs through UTeach Columbus program and other STEM initiatives.	Ongoing	Financial and personnel resources
Seek grant funding to support graduate students in mathematics education.	Ongoing	Financial and personnel resources
Explore possibility of admitting students from outside the state of Georgia into the online M.A.T. program.	2013-2014	Personnel resources