

CEBS CURRICULUM COMMITTEE
3:00 pm – December 7, 2010
Dean’s Conference Room

I. Approval of Minutes of the November 2, CEBS Curriculum Committee. (These minutes can be found on the CEBS Web Page, click on Faculty and Staff and then meeting minutes and agendas.)

II. **New Business**

School of Teacher Education

1. New Course – SMED 501, Designing Instructional Sequences in Secondary Math and Science
2. New Course – SMED 510, Advanced Topics in Knowing and Learning in Mathematics and Science
3. New Course – SMED 520, Management for Positive Learning Environments
4. Revise Course Prerequisites – MGE 475, Teaching Language Arts
5. Revise Course Prerequisites – MGE 481, Teaching Social Studies
6. New Course – ELED 571, Leadership, Math and Technology Education
7. New Course – ELED 572, Math and Technology Methods for Diverse Learners
8. New Course – ELED 573, Math and Technology Assessment
9. New Endorsement Program – Endorsement for Elementary Mathematics Specialist, P-5
10. New Academic Degree Type – Master of Arts in Teaching

III. **Other Business**

Information Items –

- Clarification of Codes for the Director of Special Education Certification Programs
- Clarification of Certification Codes for School Counseling Graduate Programs

**College of Education and Behavioral Sciences
School of Teacher Education
Proposal to Create a New Course
(Action Item)**

Contact Person: Vicki Metzgar vicki.metzgar@wku.edu 270-745-2451

1. Identification of proposed course

- 1.1 Course prefix (subject area) and number: SMED 501
- 1.2 Course title: Designing Instructional Sequences in Secondary Math and Science
- 1.3 Abbreviated course title: Design Instr Seq Sec Math/Sci
- 1.4 Credit hours: 3
- 1.5 Schedule type: A-Applied Learning
- 1.6 Prerequisites/corequisites: Admission to GSKyTeach program/ SMED 510
- 1.7 Course description:

Theory and practice of designing and delivering high quality inquiry-based math and science instruction. Students explore and practice the guided inquiry process, create lesson plans, and implement lessons with secondary students.

2. Rationale

- 2.1 Reason for developing the proposed course:

This course is part of the graduate science and mathematics education program (GSKyTeach), a graduate version of the successful SKyTeach undergraduate experience at WKU. The proposed course will be one of three courses in the GSKyTeach program required of GSKyTeach candidates prior to entering an internship year in a public secondary school. Students who are recruited into GSKyTeach have undergraduate degrees in mathematics or science, but none have any preparation for teaching in their undergraduate coursework. Since GSKyTeach students will become interns in public schools in the fall, they require intensive preparation for planning, organizing, and delivering meaningful content-rich lessons. SMED 501 will prepare students for this by preparing them to teach in a weekly, day-long summer math and science camp with upper elementary and middle school students. Here, students will develop and teach inquiry-based lessons using the 5-E model (engage, explore, explain, expand, and evaluate) under the guidance of faculty and master teachers.

- 2.2 Projected enrollment in the proposed course:

Enrollment in all GSKyTeach courses will be limited to the number of residency candidates who are recruited and enrolled in the GSKyTeach program. The initial cohort consisted of 15 residency candidates. The number of candidates may

fluctuate between 10-25 candidates as the program budget allows.

2.3 Relationship of the proposed course to courses now offered by the department:

SMED 501 is designed to specifically meet the needs of graduate students in the GSKyTeach program, who will have no foundational knowledge or educational background. The proposed course will be tailored for science and mathematics instruction, exclusively.

SMED 501 goes beyond EDU 250 and MGE 275 to include planning and teaching math and science lessons in classrooms supervised by teachers. Moreover, even though SMED 501 resembles undergraduate mathematics and science methods courses, such as MGE/SEC 477 and 479, the proposed course is intended for students who are just beginning their academic preparation in education who would not be able to navigate these courses successfully.

SMED 501 most closely resembles MGE 543, SEC 534, SEC 537, and EDU 507; however, the proposed course will differ from these other courses because the other courses are intended for teachers seeking advanced certification, i.e., those who are already certified. By contrast, the proposed course will address how to teach math and science at the level of students seeking initial certification.

2.4 Relationship of the proposed course to courses offered in other departments:

There are other departments that offer courses related to teaching math and science, such as: MATH 508, 511, and 512; CHEM 470G; GEOS 507; PHYS 410G, 516, 518, 519; ASTR 405G. These existing courses are for students who are already teachers, whereas the proposed course is for students seeking initial certification.

2.5 Relationship of the proposed course to courses offered in other institutions:

Many elements of the GSKyTeach program are patterned after the UTeach sequence of courses at the University of Texas at Austin. This course is intended to provide students who have no formal preparation in education with a foundation in using 5-E/Inquiry methodology for teaching mathematics and science lessons. A search for similar courses at other institutions did not provide evidence of such a course in any institution. Most other institutions provide traditional paths for teachers who already hold certification to earn a master's degree in a content area focused on teaching, but there are very few who offer a residential master's degree program in a single year, like GSKyTeach.

3. Description of proposed course

3.1 Course objectives:

The student will be able to:

- Incorporate the 5-E model of instruction.
- Integrate measurable learning objectives.
- Support inquiry-based instruction.
- Critique models of teaching.
- Prepare and reflect upon 5-E lesson plans in a professional manner.

3.2 Content outline:

Students will:

- Construct, synthesize, teach, and evaluate 5-E model lessons in a professional manner.
- Monitor student engagement and learning
- Analyze student learning by using questioning techniques, formative and summative assessments, student demonstrations, etc.
- Collect information and data from students for reflection on and revision of instruction
- Develop and assess measurable learning objectives
- Integrate technology into instructional practices
- Describe the structure of public education (e.g. management, procedures, positive expectations, and legal issues).

3.3 Student expectations and requirements:

Students in SMED 501 will be required to plan, organize, and teach 5-E/Inquiry lessons each week to a group of students in the field. Evaluations of SMED 501 student work will be done by the instructors and will include how well each student:

- Plans, organizes, and prepares for instruction
- Incorporates the 5-E model of instruction into each lesson
- Monitors and adjusts instruction for each lesson and group of students
- Integrates measurable learning objectives
- Utilizes effective questioning strategies to uncover prior conceptions of content among students
- Reflects on his/her teaching performance each week
- Critiques the various models of teaching
- Conducts him/herself in a professional manner in instructional settings

- 3.4 Tentative texts and course materials:
Materials from the University of Texas-Austin's UTeach program (available online) will be used.

4. Resources:

- 4.1 Library resources:
Current library holdings are sufficient.
- 4.2 Computer resources:
Current WKU resources are sufficient.
- 4.3 Enrollment in first offering:
15 students

5. Budget implications:

- 5.1 Proposed method of staffing:
Tuition will cover the cost of staffing for the course.
- 5.2 Special equipment needed:
There is no special equipment necessary to teach this course.
- 5.3 Expendable materials needed:
Current available materials are sufficient.
- 5.4 Laboratory materials needed:
No laboratory materials will be required for this course.

6. Proposed term for implementation:

Summer 2011

7. Dates of prior committee approvals:

School of Teacher Education:	<u>September 17, 2010</u>
CEBS Curriculum Committee	_____
Professional Education Council	_____
Graduate Council	_____
University Senate	_____

Attachment: Library Resources Form, Course Inventory Form

**College of Education and Behavioral Sciences
School of Teacher Education
Proposal to Create a New Course
(Action Item)**

Contact Person: Vicki H. Metzgar, vicki.metzgar@wku.edu, 270-745-3343

1. Identification of proposed course:

- 1.1 Course prefix (subject area) and number: SMED 510
- 1.2 Course title: Advanced Topics in Knowing and Learning in Mathematics and Science
- 1.3 Abbreviated course title: Adv Topics Knowing/ Learning
- 1.4 Credit hours and contact hours: 3.0
- 1.5 Type of course: C (lecture/lab)
- 1.6 Prerequisites/corequisites: Admission to GSKyTeach program/ SMED 501
- 1.7 Course catalog listing:

Exploration of *essential questions* specifically relevant to teaching mathematics and science. Standards for knowing, how they are used, how knowing and learning are structured, and how what is known changes and develops.

2. Rationale:

- 2.1 Reason for developing the proposed course:

This course is part of the graduate science and mathematics education program (GSKyTeach), a graduate version of the successful SKyTeach undergraduate experience at WKU. The proposed course will be one of three courses in the GSKyTeach program required of GSKyTeach candidates prior to entering an internship year in a public secondary school. Students who are recruited into GSKyTeach have undergraduate degrees in mathematics or science, but none have any preparation for teaching in their undergraduate coursework. Since GSKyTeach students will become interns in public schools in the fall, they require intensive preparation for planning, organizing, and delivering meaningful content-rich lessons.

Knowing and Learning builds and expands upon current theories of learning and conceptual development in the STEM fields. One goal is for students to construct a model of knowing and learning that will guide their future classroom practice. This course involves an exploration of *essential questions*, specifically those relevant to teaching science and mathematics. Students evaluate standards for knowing and learning, describe the structure of knowing and learning standards, and analyze changes and developments in knowing and learning. Ultimately, students explore and integrate the *essential questions* between general and cross-

disciplinary characterizations of knowing (e.g., intelligence), as well as the specifics of coming to understand powerful ideas in mathematics and science.

2.2 Projected enrollment in the proposed course:

Enrollment in all GSKyTeach courses will be limited to the number of residency candidates who are recruited and enrolled in the GSKyTeach program. The initial cohort consisted of 15 residency candidates. The number of candidates may fluctuate between 10-25 candidates as the program budget allows.

2.3 Relationship of the proposed course to courses now offered by the department:

SMED 510 is designed to specifically meet the needs of graduate students in the GSKyTeach program, who will have no foundational knowledge or educational background. The proposed course will be tailored for science and mathematics instruction, exclusively.

Graduate courses in the School for Teacher Education are mostly for teachers seeking advanced certification, rather than for individuals seeking initial certification. Therefore, most students in graduate education courses will not require a course designed specifically for Science and Mathematics instruction.

Students in the ARTC-MAE program for initial certification are required to take EDU 520 and EDU 521 which are designed to help those candidates plan curriculum and instruction. However, each of these is a more general course, not designed specifically for students planning to teach science or mathematics.

Students in the Master of Science in Instructional Design program must take EDU 522 and EDU 524, for implementing and differentiating instruction in K-12 teaching, but again, neither of these deals with knowing and learning as it relates specifically to the content areas of mathematics or science.

Two other SMED courses offered during the summer session to prepare GSKyTeach students for entering classrooms in the fall are:

1. Designing Instructional Sequences in Secondary Mathematics and Science (SMED 501)
2. Management for Positive Learning Environments (SMED 520)

2.4 Relationship of the proposed course to courses offered in other departments:

Most Education graduate students must take PSY 510 or PSY 511 to meet the requirements for psychology in their programs, however, neither of these courses is directly related to knowing and learning in the specific content areas of mathematics or science. Because GSKyTeach students will be expected to plan

and implement inquiry based and hands on mathematics and science lessons, SMED 510 will provide them with a concentrated focus on the psychology of how students learn based on the constructivist theory of learning.

2.5 Relationship of the proposed course to courses offered in other institutions:

The previous comments differentiating SMED 510 from psychology courses offered at WKU apply, likewise, to the difference between SMED 510 and courses at other institutions. Although there is not a course of this design and rigor at a benchmark institution, the following partially relate:

Middle Tennessee State University—PSY 510 ADVANCED ED PSY
Application of psychological and developmental theories to teaching and learning. Examination of cognitive, social, and moral development, learner diversity, learning theories, motivation, effective classroom management, productive instructional practices, and assessment.

Ball State University—EDPSY 765 THEORIES OF LEARNING

A doctoral seminar in contemporary learning theories. Covers the systematic roots of learning theories within psychology and their implications for educational and psychological practice.

Wichita State University—CESP 820 LEARNING THEORY AND INSTRUCTION: Applications of some major learning theories and learning principles.

3. Discussion of proposed course:

3.1 Course objectives:

At the conclusion of SMED 510, the student will be able to:

- Construct models of knowing and learning to guide classroom practice
- Articulate various standards and assessments for knowing science and mathematics
- Communicate the process of knowing and learning in terms of cognitive structures and overtime
- Create domain-specific essential questions and standards
- Describe various paradigms for evaluating science and mathematics understanding
- Apply the clinical interview method to determine the problem solving methods used by students in science or mathematics
- Evaluate findings of the clinical interview process using peer-reviewed literature
- Appraise informed opinions on current issues and tensions in education, especially as they relate to mathematics and science instruction

3.2 Content outline:

SMED 510 Instruction will focus on:

- the conceptual framework for the 5E learning cycle and inquiry teaching and learning;
- research on effective assessment for learning (Chappuis & Stiggins, 2002);
- types of instruments appropriate and productive in pre-teaching, formative, and summative assessments and their use for designing and decision making in instructional design;
- providing reflective feedback to students;
- conceptual understanding of depth of knowledge;
- the use of clinical interviews to uncover misconceptions and facilitate problem solving; and
- alternative instructional strategies for different levels of learning, learning styles, temperaments, abilities, and special needs.

3.3 Student expectations and requirements:

- Students will create 5E inquiry manipulatives for use in science and mathematics instruction
- Students will conduct clinical interviews to discover “How People Learn” and write a reflection paper on the interviews.
- Students will prepare critiques and reflections on current literature in learning theory, classroom management, classroom organization, inquiry learning, problem based learning and legal issues for teachers.
- Students will peer teach a lesson on various learning and behavioral theorists.
- Students will role play and simulate classroom management vignettes.
- Students will develop a school safety plan.
- Students will prepare and peer teach a content area reading lesson using the 5E inquiry model of instruction.
- Students will prepare a substitute teacher folder.

3.4 Tentative texts and course materials:

Bransford, J. D. (Ed.), Brown, A. L. (Ed.), Cocking, R. R. (Ed.). (2000). *How people learn: Brain, mind, experience, and school: Expanded edition*. U.S., District of Columbia: National Academy of Sciences - National Research Council, Washington, DC. Commission on Behavioral and Social Sciences and Education.

Hays, R. T. (2006). *The science of learning: A systems theory approach*. United States: Brown Walker Press.

Seidman, I. (1991). *Interviewing as qualitative research: A guide for researchers in education and the social sciences*. New York, NY, US: Teachers College Press.

4. Resources:

4.1 Library resources:
Current library holdings are sufficient.

4.2 Computer resources:
Current WKU resources are sufficient.

5. Budget implications:

5.1 Proposed method of staffing:
Tuition will cover the cost of staffing for the course.

5.2 Special equipment needed:
There is no special equipment necessary for this course.

5.3 Expendable materials needed:
Current available materials are sufficient.

5.4 Laboratory materials needed:
No laboratory materials will be required for this course.

6. Proposed term for implementation:

Summer 2011

7. Dates of prior committee approvals:

School of Teacher Education: September 17, 2010

CEBS Curriculum Committee _____

Professional Education Council _____

Graduate Council _____

University Senate _____

Attachment: Bibliography, Library Resources Form, Course Inventory Form

**College of Education and Behavioral Sciences
School of Teacher Education
Proposal to Create a New Course
(Action Item)**

Contact Person: Vicki Metzgar vicki.metzgar@wku.edu 270-745-2451

1. Identification of proposed course

- 1.1 Course prefix (subject area) and number: SMED 520
- 1.2 Course title: Management for Positive Learning Environments
- 1.3 Abbreviated course title: Mgmt Pos Lrng Envmnts
- 1.4 Credit hours: 3
- 1.5 Schedule type: C-Lecture/Lab
- 1.6 Prerequisites/corequisites: Admission to GSKyTeach program
- 1.7 Course description:

Application of learning theories in instructional settings with diverse student populations. Emphasizes proactive, positive classroom management for teaching and learning. Fieldwork required; students are responsible for arranging their own transportation to sites.

2. Rationale

- 2.1 Reason for developing the proposed course:

This course is one of three courses in the GSKyTeach program required of students prior to entering an internship year in a public secondary school. Students entering GSKyTeach will have a content major in math or science but no pedagogy, and they will be moving directly into a student teaching placement in a high school classroom in the fall, so SMED 520 will prepare them to plan appropriate strategies to manage classrooms and discourse among teachers and students, organize classroom layouts (especially science laboratory classrooms) for maximum teaching and learning efficiency, and manage transitions to maximize instructional time on task and student learning. Moreover, having offered the course as a temporary course in Summer 2010, the faculty has been able to fine-tune the content and assessments for a permanent course.

- 2.2 Projected enrollment in the proposed course:

Enrollment in all GSKyTeach courses will be limited to the number of residency candidates who are recruited and enrolled in the GSKyTeach program. The initial cohort consisted of 15 residency candidates. The number of students may fluctuate between 10-25 candidates as the program budget allows.

2.3 Relationship of the proposed course to courses now offered by the department:

SMED 520 is designed to specifically meet the needs of graduate students in the GSKyTeach program, who will have no foundational knowledge or educational background. The proposed course will be tailored for science and mathematics instruction, exclusively.

Students in the Alternate Route to Teacher Certification/ Master of Arts in Education (ARTC/MAE) program have no course requirement for a course similar to SMED 520. This course most closely resembles the SKyTeach course SMED 320, Classroom Interactions. This course is more rigorous, requiring students to demonstrate a greater degree of management skills which are necessary as these students enter public secondary schools in the fall.

2.4 Relationship of the proposed course to courses offered in other departments:

SMED 520 is designed to specifically meet the needs of graduate students in the GSKyTeach program, who will have no foundational knowledge or educational background. The proposed course will be tailored for science and mathematics instruction, exclusively.

SMED 520 will differ from MGE 543, SEC 534, SEC 537, SEC 453, and EDU 507, because the other courses are intended for teachers seeking advanced certification, i.e., those who are already certified. By contrast, the proposed course will address how to manage classrooms, mathematics and science classrooms specifically, not general classrooms like SEC 453.

2.5 Relationship of the proposed course to courses offered in other institutions:

A search for similar courses at other institutions did not provide evidence of such a course in any institution. Most other institutions provide traditional paths for teachers who already hold certification to earn a master's degree in a content area focused on teaching, but there are very few who offer a residential master's degree program in a single year, like GSKyTeach.

Middle Tennessee State University offers one course that has only marginal similarities to SMED520. It is FOED 6850 Cultural Issues in Education. Ways the school and community can give greater understanding of and improve the life chances of minority group members. Even so, the MTSU course does not address management of classrooms for aspiring teachers.

3. Description of proposed course

3.1 Course objectives:

The student will be able to:

- Design a plan for teaching rules and procedures so as to maximize student engagement and learning
- Design a classroom layout plan that maximizes teacher to student and student to student interactions and safety while minimizing disruptions to instruction
- Incorporate multiple models of teaching (including direct instruction, inquiry teaching and use of small groups)
- Support inquiry-based instruction, probing student understanding through authentic assessment and student artifacts
- Critique models of teaching with an awareness of equity and diversity issues in classroom teaching and ways of ensuring that all students have an opportunity to learn.
- Identify and evaluate best teaching practices as presented in research literature
- Develop an awareness of the dispositions and proficiencies required for professional certification in education
- Evaluate texts and design strategies to improve student literacy in mathematics and science

3.2 Content outline:

- Designing student centered classrooms for managing instruction
- Planning and promoting positive student management in science and mathematics classrooms
- Promoting equity in classroom interactions
- Promoting literacy in the teaching of mathematics and science content
- Designing for learner-centered instruction and safety in laboratory classrooms
- Engaging students with content interactions
- Building positive teacher-student interactions
- Facilitating student-student interactions
- Promoting professional dispositions among educators

3.3 Student expectations and requirements:

Students will:

- design an instruction plan for the first days of a course to demonstrate proficiency at classroom organization and management
- research a discipline model and present a plan for establishing discipline among students in their classes
- design lessons for teaching that meet the needs of students of diverse needs and abilities

- Examine secondary mathematics and science textbooks and produce a report related to the reading level of the textbooks
- design and peer teach mathematics and science lessons that promote literacy among mathematics and science students in the appropriate content areas
- research an example of teacher misconduct and present the results to their classmates for a wider discussion of professional standards of conduct for educators
- peer teach a classroom management issue and write a reflection of the experience self assessing readiness for real classroom management issues

3.4 Tentative texts and course materials:

There will be no texts for this course. Course materials will consist of readings appropriate for building knowledge of secondary mathematics and science teaching skills that enhance the student's ability to manage classroom interactions, provide for the needs of diverse learners, and to promote literacy in the content of mathematics and science. The following list is illustrative, but not complete.

Breyfogle, M. & Herbel-Eisenmann, B. (2004). Focusing on students' mathematical thinking. *Mathematics Teacher*, 97 (4), 244-247.

Chazan, D. (2000). Chapter 2: Curricular engagement and personal trajectories: "Motivation" in high school mathematics. In *Beyond Formulas in Mathematics and Teaching* (37-58). New York: Teachers College Press.

Clough, M., Smasal, R, & Clough, D. (1994). Managing each minute. *The Science Teacher*, 61 (6), 30-34.

Connery, K. (2007). Graphing predictions: Enhancing higher-order thinking skills in math and science. *The Science Teacher*, 74(2), 42-46.

Dekker, T. (2007). A model for constructing higher level classroom assessments. *Mathematics Teacher*, 101 (1), 56-61.

Driver, R., Squires, A., Rushworth, P. & Wood-Robinson, V. (1994). Introduction, pp.1-13, Microbes, pp.54-58, Ecosystems, pp.59-69 in *Making sense of secondary science*, London and New York: Rutledge.

Evertson, C. & Harris, A. (1994). What we know about managing classrooms. *Educational Leadership*, 49 (7), 74-77.

- Gerver, R. & Sgroi, R. (2003). Creating and using guided-discovery lessons. *Mathematics Teacher*, 96 (1), 6-13.
- Lederman, N. (1999). Teachers' understanding of the nature of science and classroom practice: Factors that facilitate or impede the relationship. *Journal of Research in Science Teaching*, 36(8), 916-929.
- Lederman, N. & Lederman, J. (2004). Revising instruction to teach nature of science. *The Science Teacher*, 71(9), 36-39.
- Medina-Jerez, W., Clark, D., Medina, A., & Ramirez-Marin, F. (2007). Science for ELLs: Rethinking our approach. *The Science Teacher*, 74(3), 52-56.
- Monk, D. (1994). Subject area preparation of secondary mathematics and science teachers and student achievement. *Economics of Education Review*, 13(2), 125-145.
- Morge, S. (2007). Eliciting students' beliefs about who is good at mathematics. *Mathematics Teacher*, 101(1), 50-55.
- Nicol, C. (1998-1999). Learning to Teach Mathematics: Questioning, Listening, and Responding. *Educational Studies in Mathematics*, 37(1), 45-66.
- Rider, R. (2007). Shifting from traditional to nontraditional teaching practices using multiple representations. *Mathematics Teacher*, 100 (7), 494-499.
- Rothstein (2004). Class and the classroom. *American School Board Journal*, 191(10), 17-21.
- Rouselle, L. & Noel, M. (2006). Basic numerical skills in children with mathematics learning disabilities: A comparison of symbolic vs non-symbolic number magnitude processing. *Cognition*, 102, 361-395.
- Sadker, D. (2000). Gender equity: still knocking at the classroom door. *Equity & Excellence in Education*, 33(1), 80-83.
- Vasquez-Mireles, S. & West, S. (2007). Mix it up: Suggestions for correlating science and mathematics. *The Science Teacher*, 74(2), 47-49.

4. Resources:

- 4.1 Library resources:
Current library holdings are sufficient.
- 4.2 Computer resources:
Current WKU resources are sufficient.

5. Budget Implications:

- 5.1 Proposed method of staffing:
Tuition will cover the cost of staffing for the course.

- 5.2 Special equipment needed:
No special equipment will be necessary for this course.

- 5.3 Expendable materials needed:
Current available materials are sufficient.

- 5.4 Laboratory materials needed:
No laboratory materials will be required for this course.

6. Proposed term for implementation:

Summer 2011

7. Dates of prior committee approvals:

School of Teacher Education:	<u>September 17, 2010</u>
CEBS Curriculum Committee	_____
Professional Education Council	_____
Graduate Council	_____
University Senate	_____

Attachments: Library resource form, Course Inventory Form

Proposal Date: 11/02/10

**College of Education and Behavioral Sciences
School of Teacher Education
Proposal to Revise Course Prerequisites
(Consent Item)**

Contact Person: Dr. Elizabeth Cooksey, elizabeth.cooksey@wku.edu, 5-2515

- 1. Identification of course:**
 - 1.1 Course prefix (subject area) and number: MGE 475
 - 1.2 Course title: Teaching Language Arts
 - 1.3 Credit hours: 3
- 2. Current prerequisites:** MGE 275, PSY 310, ENG 302, and two of the following: ENG 310, ENG 401, or ENG 410.
- 3. Proposed prerequisites:** MGE 275, PSY 310, ENG 302, and two of the following: ENG 310, ENG 401, or ENG 410; and admission to teacher education.
- 4. Rationale for the revision of prerequisites:** This course is the final pedagogy course before the student teaching semester, so it is important that students have been admitted to teacher education before beginning the course. As this course requires a significant field component, it is not appropriate for students who are unable to qualify for admission to teacher education to enroll.
- 5. Effect on completion of major/minor sequence:** No effect, other than to prompt students to complete teacher admission process a little earlier.
- 6. Proposed term for implementation:** Fall 2011
- 7. Dates of prior committee approvals:**

School of Teacher Education:	11/12/2010
CEBS Curriculum Committee	_____
Professional Education Council	_____
Undergraduate Curriculum Committee	_____
University Senate	_____

Attachment: Course Inventory Form

**College of Education and Behavioral Sciences
School of Teacher Education
Proposal to Revise Course Prerequisites
(Consent Item)**

Contact Person: Dr. John Moore, john.moore@wku.edu, 5-5415

- 1. Identification of course:**
 - 1.1 Course prefix (subject area) and number: MGE 481
 - 1.2 Course title: Teaching Social Studies
 - 1.3 Credit hours: 3

- 2. Current prerequisites:** MGE 275, PSY 310

- 3. Proposed prerequisites:** MGE 275, PSY 310, HIST119 or HIST 120, HIST 240, HIST 241, GEOG 110, PS110, and admission to teacher education.

- 4. Rationale for the revision of prerequisites:** Two changes are proposed. First, several content courses are proposed as prerequisites so that students will have completed a significant part of the content course work before enrolling in the methods course. The second proposed change is to require admission to teacher education as a prerequisite. This change is proposed because MGE 481 is the final pedagogy course before the student teaching semester, and it is important that students have been admitted to teacher education before beginning the course. As this course requires a significant field component, it is not appropriate for students who are unable to qualify for admission to teacher education to enroll.

- 5. Effect on completion of major/minor sequence:** No effect, other than to prompt students to complete teacher admission process a little earlier.

- 6. Proposed term for implementation:** Fall 2011

- 7. Dates of prior committee approvals:**

School of Teacher Education:	11/12/2010
CEBS Curriculum Committee	_____
Professional Education Council	_____
Undergraduate Curriculum Committee	_____
University Senate	_____

Attachment: Course Inventory Form

College of Education and Behavioral Sciences
School of Teacher Education
Proposal to Create a New Course
(Action Item)

Contact Person: Janet Tassell, janet.tassell@wku.edu, 270-745-5306

1. Identification of proposed course:

- 1.1 Course prefix (subject area) and number: ELED 571
- 1.2 Course title: Leadership, Math and Technology Education
- 1.3 Abbreviated course title: Leadership, Math & Tech Ed
- 1.4 Credit hours: 3
- 1.5 Schedule type: L
- 1.6 Prerequisites/corequisites: Instructor Permission
- 1.7 Course description: Leadership and pedagogy for integrating mathematics and technology initiatives within elementary school settings.

2. Rationale:

- 2.1 Reason for developing the proposed course: This course will be a critical component of the Elementary Mathematics Specialist (P-5) Endorsement program that WKU is developing in response to the certification created by Kentucky's Education Professional Standards Board (EPSB) in August 2010. The proposed course could also be included in graduate programs in education. As per the AMTE Elementary Mathematics Specialist Standards, the particular content in this course is needed to further develop teacher leadership in math and technology pedagogy. The proposed course is currently being offered as a temporary course for the Toyota Award for the Math and Technology Leadership Academy grant that WKU received in Spring 2010.

As the current graduate course offerings do not include courses that accomplish these standards, this course is designed to fill a great need for Elementary Mathematics Specialist Endorsement. This course is connected to the AMTE Elementary Mathematics Specialist Standard III -- Leadership knowledge and skills:

- Use professional resources to be informed about critical issues related to mathematics teaching and learning.
- Select from a repertoire of methods to communicate professionally about students, curriculum, instruction, and assessment to educational constituents.
- Plan, develop, implement, and evaluate professional development programs at the school and district level and support teachers in systematically reflecting and learning from practice.

2.2 Projected enrollment in the proposed course: 15-20 students. The basis for this estimate is that we typically have this number of students enrolled in graduate elementary mathematics methods courses.

2.3 Relationship of the proposed course to courses now offered by the department:

One related course is ELED 505 Advanced Materials and Methods in Modern Mathematics for Elementary Teachers. This course involves the conceptual, the computational, and application aspects of mathematics with emphasis on the structural aspects of mathematics and on the “why” of arithmetic computation. Students explore how the brain processes mathematical concepts, why some students quickly develop math anxiety, the cognitive mechanisms for learning mathematics, the environmental and developmental factors that contribute to mathematics difficulties, and ways to differentiate mathematics instruction. While ELED 505 focuses on elementary mathematics pedagogy, the proposed course, ELED 571, will focus on creating a teacher leader in mathematics and technology education pedagogy.

Several courses from Library/Media Education are related to this proposed course: LME 445G Introduction to Educational Technology is a course about instruction and laboratory experiences in the basic theory and the application of educational technology to the design, production, evaluation, and utilization of various communication media formats. LME 448G Technology Applications in Education includes uses of technology in education for instruction and instructional management. The emphasis is on evaluation and utilization of appropriate software and hardware. LME 537 Principles of Educational Technology Applications is a course that teaches uses of technology for instruction and instructional management. The emphasis is on instructional techniques, evaluation and utilization of appropriate instructional software, productivity tools, and the Internet for various subjects, grade levels, and needs of diverse learners. LME 547 Integration of Educational Technology is a course on application of principles of instructional design to the integration of technology into education and training programs. LME 550 Emerging Technology in Education is a survey of new and significant technology developments and integration strategies in education; research on applications and their effectiveness on P-12 pupil learning; and application of new technologies to design, produce, and assess P-12 learning. ELED 571 differs from these courses in that it focuses on leadership in technology integration within the mathematics context.

MGE/SEC 534 Math Education covers newer concepts in curriculum and methods of instruction, current research, and problems in mathematics education. ELED 571 differs from this course as the focus on the mathematics pedagogy is in the elementary setting.

In the newly-revised MAE programs for Teacher Leaders, an introductory course,

TCHL 500, has been developed to give teachers a foundation in general school leadership. The proposed course, ELED 571, specifically addresses leadership skills for the participant to grow in leading a school in mathematics and technology education.

- 2.4 Relationship of the proposed course to courses offered in other departments: WKU offers several courses that have some overlap in content, including courses in Mathematics, Architectural and Manufacturing Sciences, and Computer Science. For example, MATH 500 Readings in Mathematics offers students opportunities to investigate current research in mathematics and MATH 504 Computer Applications to Problems in Mathematics teaches computer techniques and solutions of problems in mathematics including calculus, applied statistics, simulation, linear programming, game theory and linear algebra. The AMS courses offered at the graduate level lead to a Master of Science in technology management and focus on business and industrial applications. The computer science courses focus on computer programming and engineering. By contrast, ELED 571 specifically addresses leadership skills for the participant to grow in leading a school in mathematics and technology education. Additionally, ELED 571 has requirements not included in any of the courses listed above related to field experiences, development of curriculum specific to mathematics, and technology integration at the elementary school level.

In the School Principal (MAE) program, three courses have leadership components somewhat related to the proposed course. Those are: EDAD 682 School-Community Relations, EDAD 682 Leading Teaching and Learning, and EDAD 684 Instructional Leadership. The proposed course, ELED 571, differs from these as it targets the teacher as a leader in mathematics and technology education.

- 2.5 Relationship of the proposed course to courses offered in other institutions:

The Elementary Mathematics Specialist (P-5) Endorsement is a new endorsement for Kentucky. Other institutions in Kentucky are in the process of creating courses similar to this course proposal.

Courses similar to this one:

University of Virginia Mathematics Specialist Program includes three courses: EDIS 745, EDLF 782, and EDIS 871. ELED 571 is similar to EDIS 745: Problems and Issues in Mathematics Education: Leadership I for Mathematics Specialists in that it gives participating teachers an introduction into the role of the mathematics specialist and mathematics pedagogy. Special attention is given to helping each participant understand and be able to demonstrate knowledge of students as mathematics learners, teachers as learners, including self-reflection and collaboration as a tool for learning. ELED 571 is similar to EDLF 782: Development and Evaluation of Educational Staff: Leadership II for Mathematics

Specialists in that the course is designed for teachers to build those skills, understandings and dispositions required to play optimal, mathematics education leadership roles in elementary/middle schools. The purpose of this course is to acquaint prospective mathematics specialists with those skills, understandings and dispositions that include developing and refining coaching skills and skills to work with adult learners, and refining one's philosophy about teaching and learning mathematics. ELED 571 is similar to EDIS 871: Curriculum: Advanced Theory (Mathematics) Leadership III for Mathematics Specialists in that this course is designed for teachers to build those skills, understandings and dispositions required for teachers who will play optimal, math education leadership roles in elementary schools. The purpose of this course is to acquaint prospective mathematics specialist with those skills, understandings and dispositions that include developing and refining knowledge and skills needed to make instructional observations and to coach teachers, developing and refining knowledge and skills used to identify problems in teaching or learning mathematics, to identify and use resources to address those problems, developing and refining one's knowledge and skills in grant writing and formal presentations, building a deeper understanding of mathematics pedagogy, building a deeper understanding of the mathematics that underpins the mathematics elementary teachers will teach, and refining one's philosophy about teaching and learning mathematics.

University of Central Missouri: ECEL 5240 Leadership & Analysis of Teaching Children. This course addresses current leadership theory and analysis of teaching practices. Development and implementation of curriculum and instruction as well as pedagogical analysis and case study. The proposed course, ELED 571, differs from this course in that it emphasizes leadership in mathematics and technology pedagogy.

California State University: EDAD 609 Leadership for Educational Equity and Access. This course prepares leaders to focus on diversity in our public schools by (1) developing an historical, cultural, and legal understanding and perspective on issues of diversity, (2) recognizing the many demographic and sociological characteristics of diversity and understanding their implications for teaching and learning, and (3) identifying leadership responsibilities for the development of successful instructional programs for all students, including those with identified special needs and those who experience uneven success in school. The proposed course, ELED 571, differs from this course in that it emphasizes leadership in mathematics and technology pedagogy.

University of Central Missouri: ECEL 4314 Integration of Technology in Instruction (3) establishes and advances the use of computer technology for both teacher productivity and instructional integration into P-12 classrooms. The proposed course, ELED 571, differs from this course in that it emphasizes leadership in mathematics and technology pedagogy.

Western Illinois University: 605 Leadership in Elementary Education. This capstone course focuses on the issue of the master's degree student as an instructional leader in his or her school, going beyond the roll of classroom teacher. Key issues concern the philosophy related to specific areas of specialization, action research, and engaging in leadership activities. The proposed course, ELED 571, differs from this course in that it emphasizes leadership in mathematics and technology pedagogy.

3. Discussion of proposed course:

3.1 Course objectives:

At the conclusion of the course students will be able to:

- develop their understanding of personal leadership and skills in leadership that apply to elementary mathematics and technology integration.
- apply their knowledge to designing problem solving lessons requiring technology products
- design open-ended problem solving with a focus on questioning and a technology product.
- develop a plan for Mathematics and Technology Leadership, incorporating actions for how to improve and a design for implementation.

3.2 Course content outline

- Knowledge of mathematics leadership
 - Current research in instructional pedagogy
 - Common Core Standards and AMTE Elementary Mathematics Specialist Standards
- Knowledge of technology leadership
 - Current research in technology pedagogy
 - Standards: International Society for Technology in Education NETS (Standards) for Teachers
- Mathematics and Technology Integration
 - Create a problem solving lesson using technology as a product
 - Create a digital story with elementary students on an authentic problem with a focus on questioning
- Leadership development in math and technology initiatives and school culture
 - Current research in leadership and change process
 - DISC Leadership qualities
 - Leadership in Math – AMTE Elementary Math Specialist Standards
- Leadership in Technology – International Society for Technology in Education NETS (Standards) for Teachers

3.3 Student expectations and requirements:

Students will be evaluated based on their performance in completing assignments such as the following:

- Develop and implement a problem-solving lesson plan using technology integration. (Lesson Plan and Technology Product)
- Create a digital story with elementary students on an authentic problem with a focus on questioning. (Lesson Plan and Technology Product)
- Develop a Blog Journal correlating to the readings regarding the impact of leadership and technology integration of mathematics instruction in their classroom and school. (Blog Journal)
- Apply personal leadership assessment results to discussion board team work. (Discussion Board)
- Develop a personal leadership plan in mathematics and technology education. (Written Plan)

3.4 Tentative texts and course materials:

Gardner, H. (2008). *Five minds for the future*. Boston: Harvard Business Press.
Instructional leadership in mathematics: Readings. (2003). Parsippany, NJ: Dale Seymour Publications (Pearson Learning Group).
Instructional leadership in mathematics. (2003). [DVD]. Parsippany, NJ: Dale Seymour Publications (Pearson Learning Group).
 Prensky, M. (2010). *Teaching digital natives: Partnering for real learning*. Thousand Oaks, CA: Corwin.

4. Resources:

- 4.1 Library resources: adequate
 4.2 Computer resources: adequate

5. Budget implications:

- 5.1 Proposed method of staffing: current staffing
 5.2 Special equipment needed: none
 5.3 Expendable materials needed: none
 5.4 Laboratory materials needed: none

6. Proposed term for implementation: Fall 2011

7. Dates of prior committee approvals:

School of Teacher Education	11/29/2010
CEBS Curriculum Committee	_____
Professional Education Council	_____
Graduate Council	_____
University Senate	_____

Attachment: Bibliography, Library Resources Form, Course Inventory Form

**College of Education and Behavioral Sciences
Department of School of Teacher Education
Proposal to Create a New Course
(Action Item)**

Contact Person: Janet Tassell, janet.tassell@wku.edu, 270-745-5306

1. Identification of proposed course:

- 1.1 Course prefix (subject area) and number: ELED 572
- 1.2 Course title: Math and Technology Methods for Diverse Learners
- 1.3 Abbreviated course title: Math & Tech for Div Lnrs
- 1.4 Credit hours and contact hours: 3
- 1.5 Type of course: L
- 1.6 Prerequisites/corequisites: Instructor Permission
- 1.7 Course catalog listing: Methods for teaching mathematics to and integrating technology with diverse learners in the elementary school setting.

2. Rationale:

- 2.1 Reason for developing the proposed course:
This course will be a critical component of the Elementary Mathematics Specialist (P-5) Endorsement program that WKU is developing in response to the certification created by Kentucky's Education Professional Standards Board (EPSB) in August 2010. The proposed course could also be included in graduate programs in education. As per the AMTE Elementary Mathematics Specialist Standards, the particular content in this course is needed to further develop teacher leadership in math and technology pedagogy. The proposed course is currently being offered as a temporary course for the Toyota Award for the Math and Technology Leadership Academy grant that WKU received in Spring 2010.

As the current graduate course offerings do not include courses that accomplish these standards, this course is designed to fill a great need for Elementary Mathematics Specialist Endorsement. This course is connected to the AMTE Elementary Mathematics Specialist Standards:

From AMTE Standard I. Content knowledge for teaching mathematics:

Further specialized mathematics knowledge for teaching (Standard I b):

- Support the development of *mathematical proficiency* as characterized by conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and productive disposition.

From AMTE Standard II. Pedagogical knowledge for teaching mathematics:

Learners and learning (Standard II a):

- Utilize and build upon learners' existing knowledge, skills, understandings, conceptions and misconceptions to advance learning.

- Understand learning trajectories related to particular topics in mathematics and use this knowledge to organize and deliver instruction that is developmentally appropriate and responsive to individual learners.
- Understand cultural differences among learners and utilize this knowledge to motivate and extend learning opportunities for individuals and groups of learners.

Teaching (Standard II b):

- Design, select and/or adapt worthwhile mathematics tasks and sequences of examples that support a particular learning goal.

Curriculum and assessment (Standard II c):

- Know learning trajectories related to mathematical topics and use this knowledge to sequence activities and design instructional tasks. Select, use, adapt, and determine the suitability of mathematics curricula and teaching materials.
- Evaluate the alignment of local and state curriculum standards, district textbooks and district and state assessments, and recommend appropriate adjustments to address gaps.

In regards to the WKU Professional Education Unit position for diversity: All education professional candidates must be able to demonstrate knowledge about issues of diversity that affect teaching and student learning. Diversity includes, but is not limited to, exceptionalities and inclusion, gifted and talented learners, English language learners and language acquisition, ethnic/racial cultural and linguistic differences, social-economic status, and gender and sexual orientation.

- 2.2 Projected enrollment in the proposed course: 15-20 students. The basis for this estimate is that we typically have this number of students enrolled in graduate elementary mathematics methods courses.
- 2.3 Relationship of the proposed course to courses now offered by the department: ELED 505 Advanced Materials and Methods in Modern Mathematics for Elementary Teachers involves the conceptual, the computational, and application aspects of mathematics with emphasis on the structural aspects of mathematics and on the “why” of arithmetic computation. Students explore how the brain processes mathematical concepts, why some students quickly develop math anxiety, the cognitive mechanisms for learning mathematics, the environmental and developmental factors that contribute to mathematics difficulties, and ways to differentiate mathematics instruction. While ELED 505 focuses on elementary mathematics pedagogy, the proposed course focuses on applying technology in elementary mathematics pedagogy to meet the needs of diverse learners. The technology and diversity foci are the primary differences between ELED 505 and the proposed course.

EDU 522 Foundations of Differentiated Instruction is a course devoted to

designing a qualitatively different instruction for students with varying abilities, interests, learning profiles, and affect within the regular classroom experience. ELED 572 differs from this course as its focus is on P-5 mathematics.

EXED 515 Education of Exceptional Children Introductory is a course for initial certification in Exceptional Education where induction issues in special education are examined. EXED 419G Assistive Technology/Classroom is designed to provide an overview of assistive technology and augmentative/alternative communication devices and their application in the special education classroom. EXED 516 The Exceptional Child: Perspectives and Issues is designed to study the characteristics, priorities, resources and issues of children who are disabled, delayed or gifted and their families. Emphasis is on current results of research and perspectives on today's children, families, schools and communities. Descriptions, issues and techniques for each area of exceptionality including learning disabilities, emotional/behavioral disorders, mentally challenged, autism, giftedness, physically challenged, health concerns, communication disorders, hearing loss, blindness or low vision, and traumatic brain injury will be included. EXED 531 Advanced Prescriptive Teaching Adapting is about the learning environment to the learner. The identification and modification of various aspects of specialized learning environments are examined. EXED 534 Research in Exceptional Child Education Reading includes interpreting and conducting research related to students with disabilities, parents, and teachers. Although all of these courses have pieces related to teaching and learning of diverse learners, ELED 572 is broader approach to diverse learners beyond exceptional education and is specific to elementary mathematics and technology integration.

In early childhood education, IECE 523 Planning Curriculum and Instruction in Interdisciplinary Early Childhood Education Planning is a course in designing, and selecting curricula, including learning environments and instruction, for children birth through kindergarten, both with and without disabilities, and their families. ELED 572 differs from this course in that the focus is on P-5 elementary mathematics learners.

Interdisciplinary education, IED 703 Equity Pedagogy and Issues of Diversity, is about issues and effects of diversity in contemporary society. Topics include: race, gender, ethnicity, class, language differences, and student ability. The focus is on the relationship of diversity to preparation, recruitment, instruction, equity pedagogy, professional development, policy, curriculum, assessment, achievement gaps and student learning. ELED 572 differs from this course as it is specific to diverse learners in elementary mathematics.

LTCY 518 Literacy Learning and Technology is a course that focuses on the use of technology to promote the development of reading, writing, and teaching and learning via electronic formats. Topics include integration of technology into

literacy instruction that supports diverse literacy learners and designing appropriate reading and language arts technology-based projects for literacy learners. LTCY 527 Literacy Learning and Cultural Differences is a course that provides an introduction to social factors, cultural factors, and aspects of language that affect teaching and learning of literacy, particularly in reading, writing, and the language arts; application of multicultural perspectives to curriculum development and classroom literacy practices. ELED 572 differs from both of these courses in that the focus is on technology integration to enhance mathematics learning at the elementary level.

- 2.4 Relationship of the proposed course to courses now offered by other departments: MATH 500 Readings in Mathematics offers students opportunities to investigate current research in mathematics and MATH 504 Computer Applications to Problems in Mathematics teaches computer techniques and solutions of problems in mathematics including calculus, applied statistics, simulation, linear programming, game theory and linear algebra. However, ELED 572 focuses more broadly on research and readings specific to mathematics, technology, and pedagogy for diverse learners. The above listed courses go beyond the scope of the proposed ELED 572 course in terms of course objectives as they relate to depth of math and technology content and the overall focus of the preparation (i.e., fields of business, engineering, computer programming). Additionally, ELED 572 has “diversity” requirements not included in any of the courses listed above related to field experiences, development of curriculum specific to mathematics and technology integration, and diverse learners at the elementary school level.

CNS 555 Social and Cultural Diversity in Counseling is a course designed to study the philosophical, sociological, developmental, and emotional understanding of multicultural education and counseling as they relate to working with individuals in schools, universities, and other human service settings. ELED 572 differs from this in that it focuses on mathematics and technology instruction for diverse learners and does not incorporate counseling.

PSY 520 Individual Differences & Human Diversity is a course devoted to studying the research and theory in aspects of human diversity, including intelligence, motivation, personality, achievement and aptitudes. Both individual and group differences are addressed, and sources of diversity are explored. ELED 572 differs from this course in that it focuses on elementary mathematics education and technology education specifically to enhance learning for diverse learners.

EDAD 680 Removing Barriers to Learning is a course for administrators to learn how planning, providing, and coordinating support programs and services to prevent and remove barriers to learning for all students. Topics include: the array of school-based services; community-based services and inter-agency

collaboration; and school-community relations skills and strategies for informing and developing community support and collaboration to meet the needs of all children. ELED 572 differs in that it focuses on actual instruction of mathematics and integration of technology at the P-5 level.

2.5 Relationship of the proposed course to courses offered in other institutions:

Courses similar to this one:

University of Virginia Mathematics Specialist Program includes three courses: EDIS 745, EDLF 782, and EDIS 871.

ELED 572 is similar to EDIS 745: Problems and Issues in Mathematics Education: Leadership I for Mathematics Specialists in that it gives participating teachers an introduction into the role of the mathematics specialist and mathematics pedagogy. Special attention will be given to helping each participant understand and be able to demonstrate knowledge of students as mathematics learners, including learning theory, assessment, and issues of diverse learners; teachers as learners, including self-reflection and collaboration as a tool for learning; and instruction, especially the design, teaching, and evaluation of inquiry based lessons.

ELED 572 is similar to EDLF 782: Development and Evaluation of Educational Staff: Leadership II for Mathematics Specialists in that it is designed for teachers to build those skills, understandings and dispositions required to play optimal, mathematics education leadership roles in elementary/middle schools. The purpose of this course is to acquaint prospective mathematics specialists with those skills, understandings and dispositions that include: Building a deeper understanding of mathematics content pedagogy; Becoming familiar with the body of research related to selected topics within the NCTM strands in mathematics education; Refining one's philosophy about teaching and learning mathematics; Building a deeper understanding of the mathematics that underpins the mathematics elementary/middle teachers will teach.

ELED 572 is similar to EDIS 871: Curriculum: Advanced Theory (Mathematics) Leadership III for Mathematics Specialists in that this course is designed to acquaint prospective mathematics specialist with those skills, understandings and dispositions that include: Developing and refining knowledge and skills to create and use formal and informal assessments and to use the resulting data to diagnose student understandings and misunderstandings; Developing and refining knowledge and skills used to identify problems in teaching or learning mathematics, to identify and use resources to address those problems, and to evaluate the results of an intervention; Building a deeper understanding of mathematics pedagogy; Building a deeper understanding of the mathematics that underpins the mathematics elementary teachers will teach; and Refining one's philosophy about teaching and learning mathematics.

EDEL 644 Education in a Diverse Society at Ball State University presents a broad understanding of social, economic, cultural, and linguistic diversity, with emphasis on how teachers and schools can respond to issues that arise as our society becomes more diverse. The proposed course is different from this course because ELED 572 emphasizes math and technology pedagogy to address the needs of diverse learners.

EDAD 609 Leadership for Educational Equity and Access at California State University at Chico prepares leaders to focus on diversity in our public schools by (1) developing an historical, cultural, and legal understanding and perspective on issues of diversity, (2) recognizing the many demographic and sociological characteristics of diversity and understanding their implications for teaching and learning, and (3) identifying leadership responsibilities for the development of successful instructional programs for all students, including those with identified special needs and those who experience uneven success in school. The proposed course is different from this course because ELED 572 emphasizes math and technology pedagogy to address the needs of diverse learners.

ELED 574 Assessment and Differentiation of Instruction at Western Illinois University focuses on the characteristics and needs of diverse populations in heterogeneous classrooms and techniques for differentiating instruction that enables all children to learn. The use of assessment to inform instructional decisions is emphasized. The proposed course is different from this course because ELED 572 emphasizes math and technology pedagogy to address the needs of diverse learners.

3. Discussion of proposed course:

3.1 Course objectives:

At the conclusion of the course, students will be able to:

- develop their understanding of mathematics and technology pedagogy related to improving mathematics understanding with diverse learners.
- apply their knowledge of differentiation to designing leveled problem solving lessons requiring technology products and designing scaffolded open-ended problem solving with a focus on questioning and a technology product.
- develop a plan for Mathematics and Technology Leadership for Diverse Learners, incorporating actions for how to improve and a design for implementation.
- complete writings reacting to research-based readings in mathematics and technology.

3.2 Content outline:

- Knowledge of mathematics and pedagogy for diverse learners

- Develop an understanding that diversity includes, but is not limited to, exceptionalities and inclusion, gifted and talented learners, English language learners and language acquisition, ethnic/racial cultural and linguistic differences, social-economic status, and gender and sexual orientation.
 - Current research in math pedagogy for diverse learners
 - AMTE and Common Core Standards
- Knowledge of technology and pedagogy for diverse learners
 - Current research in technology pedagogy for diverse learners
 - Standards: NETS-S
- Diversity as related to instruction in math and technology
- Differentiated instruction with mathematics and technology
- Mathematical Proficiency
 - What does proficiency mean?
- Misconceptions in mathematics
- Learning trajectories
- Cultural differences among learners
- Worthwhile mathematics tasks and sequences that support a particular learning goal
- Suitability of mathematics curricula and teaching materials
- Alignment of local and state curriculum standards, district textbooks and district and state assessments, and recommend appropriate adjustments to address gaps

3.3 Student expectations and requirements:

Students will be evaluated based on their performance in completing assignments such as the following:

- Read and analyze research literature and articles related to diverse learners in mathematics and technology in discussion boards and blog journals. (Discussion Board and Blog Journal)
- Select and interview a diverse learner and analyze characteristics. (Written Paper)
- Learn and apply differentiation techniques and tactics in the classroom. (Written Plan)
- Analyze technology for instruction. (Presentation)
- Use differentiation techniques to design learning module for diverse learners for a tiered problem solving lesson that requires a technology product. (Written Plan and Technology Product)
- Use the HEAT framework to design a differentiated problem solving lesson that requires a multi-media technology product. (Lesson Plan and Technology Product)

3.4 Tentative texts and course materials:

Bender, W. N. (2010). *Differentiating math instruction: Strategies that work for K-8 Classrooms*. 2nd ed. Thousand Oaks, CA: Corwin.

Gardner, H. (2008). *Five minds for the future*. Boston: Harvard Business Press.

Prensky, M. (2010). *Teaching digital natives: Partnering for real learning*. Thousand Oaks, CA: Corwin.

Teacher Learning for Mathematics Instruction: Readings. (2003). Parsippany, NJ: Dale Seymour Publications (Pearson Learning Group).

Teacher Learning for Mathematics Instruction. (2003). [DVD]. Parsippany, NJ: Dale Seymour Publications (Pearson Learning Group).

Tucker, B. F., Singleton, A. H., and Weaver, T. L. (2006). *Teaching mathematics to all children: Designing and adapting instruction to meet the needs of diverse learners*. 2nd ed. Princeton, NC: Merrill.

4. Resources:

4.1 Library resources: adequate

4.2 Computer resources: adequate

5. Budget implications:

5.1 Proposed method of staffing: current staffing

5.2 Special equipment needed: none

5.3 Expendable materials needed: none

5.4 Laboratory materials needed: none

6. Proposed term for implementation: Fall 2011

7. Dates of prior committee approvals:

School of Teacher Education:	11/29/2010
CEBS Curriculum Committee	_____
Professional Education Council	_____
Graduate Council	_____
University Senate	_____

Attachment: Bibliography, Library Resources Form, Course Inventory Form

College of Education and Behavioral Sciences
School of Teacher Education
Proposal to Create a New Course
(Action Item)

Contact Person: Janet Tassell, janet.tassell@wku.edu, 270-745-5306

1. Identification of proposed course:

- 1.1 Course prefix (subject area) and number: ELED 573
- 1.2 Course title: Math and Technology Assessment
- 1.3 Abbreviated course title: Math/Tech Assessment
- 1.4 Credit hours and contact hours: 3
- 1.5 Type of course: L
- 1.6 Prerequisites/corequisites: Instructor Permission
- 1.7 Course catalog listing: Techniques for using technology to plan, implement, and evaluate mathematics assessment in the elementary school setting.

2. Rationale:

- 2.1 Reason for developing the proposed course: Reason for developing the proposed course: This course will be a critical component of the Elementary Mathematics Specialist (P-5) Endorsement program that WKU is developing in response to the certification created by Kentucky's Education Professional Standards Board (EPSB) in August 2010. The proposed course could also be included in graduate programs in education. As per the AMTE Elementary Mathematics Specialist Standards, the particular content in this course is needed to further develop teacher leadership in math and technology pedagogy. The proposed course is currently being offered as a temporary course for the Toyota Award for the Math and Technology Leadership Academy grant that WKU received in Spring 2010.

As the current graduate course offerings do not include courses that accomplish these standards, this course is designed to fill a great need for Elementary Mathematics Specialist Endorsement. This course is connected to the AMTE Elementary Mathematics Specialist Standards:

From AMTE Standard I -- Content knowledge for teaching mathematics:

Further specialized mathematics knowledge for teaching (Standard I b):

- Diagnose mathematical misconceptions and errors and design appropriate interventions.
- Decide whether, how and how far, to utilize specific oral or written responses from learners.
- Recognize, evaluate, and respond to multiple, often non-standard solutions to problems.
- Choose and/or design tasks to support the learning of new mathematical ideas or methods, or to test learners' understanding of them.

Teaching (Standard II b):

- Construct and evaluate multiple representations of mathematical ideas or processes.
- Use questions to effectively probe mathematical understanding and make productive use of responses.

- Use various instructional applications of technology, judiciously, in ways that are mathematically and pedagogically grounded. Analyze and evaluate student ideas and work, and design appropriate responses.

From AMTE Standard II -- Pedagogical knowledge for teaching mathematics:

Curriculum and assessment (Standard II c):

- Uses multiple strategies to assess students' mathematical knowledge. Engage in discussions and decision-making to establish appropriate benchmarks for learning goals from grades K to 8. Know the different formats, purposes, uses, and limitations of various types of assessment of student learning; be able to choose, design, and/or adapt assessment tasks for monitoring student learning.
- Use the formative assessment cycle and be able to find or create appropriate resources for this purpose.
- Analyze formative and summative assessment results, make appropriate interpretations and communicate results to appropriate and varied audiences.

2.2 Projected enrollment in the proposed course: 15-20 students. The basis for this estimate is that we typically have this number of students enrolled in graduate elementary mathematics methods courses.

2.3 Relationship of the proposed course to courses now offered by the department:

EDU 524 Educational Assessment addresses evaluative techniques, including data analysis, that are employed in designing age-appropriate, standards-based instruction. The proposed ELED 573 course will emphasize assessment concepts and design, data analysis, communication of student outcomes, and instructional planning based upon the interpretation of assessment results specific to the P-5 mathematics classroom.

ELED 505 Advanced Materials and Methods in Modern Mathematics for Elementary Teachers: This course involves the conceptual, the computational, and application aspects of mathematics with emphasis on the structural aspects of mathematics and on the “why” of arithmetic computation. Students explore how the brain processes mathematical concepts, why some students quickly develop math anxiety, the cognitive mechanisms for learning mathematics, the environmental and developmental factors that contribute to mathematics difficulties, and ways to differentiate mathematics instruction. While ELED 505 focuses on elementary mathematics pedagogy, the proposed course focuses on applying technology in elementary mathematics pedagogy to assessment methods of diverse learners. The technology and assessment/intervention foci are the primary differences between ELED 505 and the proposed course.

TCHL 550 Student Assessment I: Fundamentals of Student Assessment; TCHL 554 Student Assessment II: Standardized Testing; TCHL 558 Student Assessment III: Classroom Tests/Instruments—will provide information on improving data-based decision making through the analysis of student learning. Because teachers often have difficulty understanding validity and reliability of assessments and how these relate to the cognitively complex content articulated in state standards, an understanding of the underpinnings of evaluation and measurement is essential to helping teacher leaders improve student learning. ELED 573 differs from these courses as they are not specific to mathematics and technology integration in the P-5 classroom and do not incorporate the fundamentals of

mathematics and technology into the design of the assessment study.

EXED 530 Advanced Assessment Techniques is a course that includes experiences that will be provided for students to enhance their knowledge of issues, techniques, and interpretations of various assessment procedures and instruments. ELED 573 differs from this course as it is specific to mathematics assessments in the elementary classroom.

IECE 521 Assessment in Interdisciplinary Early Childhood Education is a course that includes assessment process specific to children Birth-age five, both with and without disabilities, and their families. ELED 573 differs from this course as it is specific to mathematics assessments in the P-5 elementary classroom.

LTCY 521 Reading Intervention Practicum is a course that includes instructional techniques for use with individuals or groups involved in remedial reading instruction; materials and procedures; clinical experiences with remedial students. ELED 573 differs from this course in that it is specific to mathematics assessments in the elementary classroom.

- 2.4 Relationship of the proposed course to courses offered in other departments:
WKU offers the following courses that have some overlap in content: MATH 500 Readings in Mathematics offers students opportunities to investigate current research in mathematics and MATH 504 Computer Applications to Problems in Mathematics teaches computer techniques and solutions of problems in mathematics including calculus, applied statistics, simulation, linear programming, game theory and linear algebra. However, ELED 573 focuses more broadly on research and readings specific to mathematics, technology, and assessment and intervention planning for learners in the elementary school. The above listed courses go beyond the scope of the proposed ELED 573 course in terms of course objectives as they relate to depth of math and technology content and the overall focus of the preparation (i.e., fields of business, engineering, computer programming).

PSY 510 Advanced Educational Psychology is a course that includes application of psychological and developmental theories to teaching and learning and includes the examination of cognitive, social, and moral development, learner diversity, learning theories, motivation, effective classroom management, productive instructional practices, and assessment. PSY 561 Advanced Assessment in Educational Settings incorporates an interpretation and integration of assessment information for use in educational settings. It includes tests, behavior ratings scales, ecological analysis, systematic observations, and functional behavioral assessment. PSY 643 Psychoeducational Assessment teaches about how to use diagnostic instruments and procedures for assessing educationally-related disabilities. ELED 573 differs from these courses in that it focuses on assessment in the P-5 mathematics classroom and how to use technology for the assessing.

CNS 552 Testing and Assessment in Counseling is a course that incorporates methods, techniques, statistics, and instruments used in assessing and evaluating individuals, couples, families, and groups; administering, scoring and interpreting both objective and subjective instruments used in counseling. It also includes a survey of research design and statistics and computer utilization in counseling and use of data in decision making. ELED

573 differs from this course in that it is specific to elementary mathematics assessment and interpretation of data in the classroom from formative and summative assessments.

2.5 Relationship of the proposed course to courses offered in other institutions:

Courses similar to this one:

University of Virginia Mathematics Specialist Program includes three courses: EDIS 745, EDIS 782, and EDIS 871.

ELED 573 is similar to EDIS 745: Problems and Issues in Mathematics Education: Leadership I for Mathematics Specialists in that it gives participating teachers an introduction into the role of the mathematics specialist and mathematics pedagogy. Special attention will be given to helping each participant understand and be able to demonstrate knowledge of students as mathematics learners, including learning theory, assessment, and issues of diverse learners; teachers as learners, including self-reflection and collaboration as a tool for learning; and instruction, especially the design, teaching, and evaluation of inquiry based lessons.

ELED 573 is similar to EDLF 782: Development and Evaluation of Educational Staff: Leadership II for Mathematics Specialists this course is to acquaint prospective mathematics specialists with those skills, understandings and dispositions that include: Developing and refining coaching skills and skills to work with adult learners.

ELED 573 is similar to EDIS 871: Curriculum: Advanced Theory (Mathematics) Leadership III for Mathematics Specialists in that this course is to acquaint prospective mathematics specialist with those skills, understandings and dispositions that include: Developing and refining knowledge and skills to create and use formal and informal assessments and to use the resulting data to diagnose student understandings and misunderstandings; Developing and refining knowledge and skills used to identify problems in teaching or learning mathematics, to identify and use resources to address those problems, and to evaluate the results of an intervention; Refining one's philosophy about teaching and learning mathematics.

University of Central Missouri: ECEL 5240 Leadership & Analysis of Teaching Children. This course addresses current leadership theory and analysis of teaching practices. Development and implementation of curriculum and instruction as well as pedagogical analysis and case study. The proposed course, ELED 573, differs from this course in that it emphasizes mathematics and technology pedagogy and instructional assessment and intervention.

Eastern Michigan University: CURR 650 - Improving Instruction through Inquiry and Assessment. This course emphasizes the continued growth of the classroom teacher and the exercise of effective, culturally responsive instruction through an examination of student's learning, processes, perceptions and patterns or development. Action research methodologies, developmental theory, critical theory and analysis of student work samples help frame an understanding of students. The proposed course, ELED 573, differs from this course in that it emphasizes mathematics and technology pedagogy and instructional assessment and intervention.

Western Illinois University: 574 Assessment and Differentiation of Instruction. This course focuses on the characteristics and needs of diverse populations in heterogeneous classrooms and techniques for differentiating instruction that enable all children to learn. The use of assessment to inform instructional decisions is emphasized. The proposed course, ELED 573, differs from this course in that it emphasizes mathematics and technology pedagogy and instructional assessment and intervention.

3. Discussion of proposed course:

3.1 Course objectives:

At the conclusion of the course, students will be able to:

- develop their understanding of assessment techniques for formative, diagnostic/interim, and summative purposes.
- develop a plan of grading and communicating student learning.
- work on deepening their understanding of assessment design for the classroom which includes the various types of questions and the different methods of scoring.

- apply their knowledge from assessment to redesign instruction.

3.2 Content outline:

- Formative, diagnostic/interim, summative assessment design
 - design a variety of formative assessments
 - study research that promotes formative assessments
- Technology for assessment
 - study and analyze different technology offerings that are or could be used for assessment
- How to use assessment to inform instruction
 - reflect on the assessment results
 - determine how to redesign instruction based on the results
- Planning interventions based on assessment results
 - learn how to design an intervention plan
 - learn how to monitor student progress
- Communication of student learning
 - debate the how to communicate student learning to parents and to students

3.3 Student expectations and requirements:

Students will be evaluated based on their performance in completing assignments such as the following:

- Read and analyze research articles related to assessment in mathematics and technology in discussion boards and blog journals. (Discussion Board and Blog Journal)
- Interview of Student to Diagnose Misconceptions (Paper)
- Analyze appropriateness of technology for assessment (Presentation)
- Design assessment using a multi-media approach (Technology Product)
- Intervention Plan for Classroom (Written Plan)
- Formative & Summative Assessment Plan for Classroom (Written Plan)
- Recommendation Plan for School-wide Grading Philosophy (Written Plan)

- Math and Technology Assessment Plan based on the AMTE and ISTE standards (Written Plan)

3.4 Tentative texts and course materials:

Depka, E. (2007). *Designing assessment for mathematics*. Thousand Oaks, CA: Corwin.

Gardner, H. (2008). *Five minds for the future*. Boston: Harvard Business Press.

Premsky, M. (2010). *Teaching digital natives: Partnering for real learning*. Thousand Oaks, CA: Corwin.

Riccomini, P.J., Witzel, B. S. (2010). *Response to intervention in math*. Thousand Oaks, CA: Corwin.

Sherman, H. J., Richardson, L. I., Yard, G. J. (2009). *Teaching learners who struggle with mathematics: Systematic intervention and remediation*. 2nd Ed. Columbus, OH: Pearson.

Teacher Learning for Mathematics Instruction: Readings. (2003). Parsippany, NJ: Dale Seymour Publications (Pearson Learning Group).

Teacher Learning for Mathematics Instruction. (2003). [DVD]. Parsippany, NJ: Dale Seymour Publications (Pearson Learning Group).

4. Resources:

- 4.1 Library resources: adequate
- 4.2 Computer resources: adequate

5. Budget implications:

- 5.1 Proposed method of staffing: current staffing
- 5.2 Special equipment needed: none
- 5.3 Expendable materials needed: none
- 5.4 Laboratory materials needed: none

6. Proposed term for implementation: Fall 2011

7. Dates of prior committee approvals:

School of Teacher Education	11/29/2010
CEBS Curriculum Committee	_____
Professional Education Council	_____
Graduate Council	_____
University Senate	_____

College of Education and Behavioral Sciences
School of Teacher Education
Proposal to Create a New Endorsement Program
(Action item through PEC; information item thereafter)

Contact Person: Dr. Janet Lynne Tassell, janet.tassell@wku.edu, 745-5306

1. Identification of proposed endorsement program:

1.1 Title: Endorsement for Elementary Mathematics Specialist, P-5

1.2 Required hours in program: 15 hours

1.3 Special information:

Elementary Mathematics Specialist is a new teacher endorsement created by the state in August 2010 intended to prepare certified teachers to serve as Elementary Mathematics Specialists P-5. One of the primary goals of the Association of Mathematics Teacher Educators (AMTE) is to advocate for effective policies and practices related to mathematics teacher education. A persistent area of need is the preparation of professionals who are charged with helping young students (particularly in K–6) learn mathematics. Given the many demands and expertise required to teach all subjects of elementary school (the typical assignment of elementary classroom teachers), AMTE supports the use of elementary mathematics specialists to teach and to support others who teach mathematics at the elementary level. This expertise includes both a deep and practical knowledge of the content and pedagogy of elementary and middle school mathematics and the ability to work with other professionals to develop their mathematical knowledge for teaching.

1.4 Catalog description:

The Elementary Mathematics Specialist P-5 Endorsement is designed to give professionals both a deep and practical knowledge of the content and pedagogy of elementary mathematics and skills for working with other professionals to develop their mathematical knowledge for teaching in P-5 settings.

This graduate endorsement program requires 15 hours that may be incorporated into the Elementary Education MAE program or other graduate programs for elementary teachers. Required courses are ELED 571, ELED 572, and ELED 573, plus two graduate mathematics courses selected with advisor approval from MATH 411G (required unless MATH 411 was taken as an undergraduate), and either MATH 507 or MATH 508. Both courses are required for students who completed MATH 411 as undergraduates.

Admission Requirements:

Applicants for the endorsement for Elementary Mathematics Specialist must have or be eligible for a teaching certificate for Elementary Education, Grades P-5. Applicants who wish to count the endorsement hours toward a master's degree or other graduate program must meet the eligibility requirements of that program.

2. Objectives of the proposed certificate program:

This program is designed for post-baccalaureate educators who desire to enhance their knowledge and

skills related to elementary mathematics instruction. Upon completion of this endorsement, students will be able to:

I. Demonstrate content knowledge for teaching mathematics:

- a. Demonstrate deep understanding of mathematics for grades P-5 with a consideration of how students progress beyond elementary school to middle grades mathematics in the following areas: Number and Operations; Algebra and Functions; Geometry and Measurement; Data Analysis and Probability.
- b. Develop further specialized mathematics knowledge for teaching.
 - Create opportunities for learners to develop mathematical practices and to critically evaluate their selection and use of these practices.
 - Diagnose mathematical misconceptions and errors and design appropriate interventions.
 - Choose and/or design tasks to support the learning of new mathematical ideas or methods, or to test learners' understanding of them.

II. Demonstrate pedagogical knowledge for teaching mathematics:

- a. Demonstrate understanding of learners and learning.
 - Utilize and build upon learners' existing knowledge, skills, understandings, conceptions and misconceptions to advance learning.
 - Create social learning contexts that engage learners in discussions and mathematical explorations among peers to motivate and extend learning opportunities.
- b. Demonstrate expertise of teaching.
 - Design, select and/or adapt worthwhile mathematics tasks and sequences of examples that support a particular learning goal.
 - Use questions to effectively probe mathematical understanding and make productive use of responses.
 - Model effective problem solving and mathematical practices—questioning, representing, communicating, conjecturing, making connections, reasoning and proving, self-monitoring and cultivate the development of such practices in learners.
 - Analyze and evaluate student ideas and work, and design appropriate responses.
 - Develop skillful and flexible use of different instructional formats—whole group, small group, partner, and individual—in support of learning goals.
 - Manage diversities of the classroom and school—cultural, disability, linguistic, gender, socio-economic, developmental—and use appropriate strategies to support mathematical learning of all students.
- c. Demonstrate skills in designing and implementing curriculum and assessment.
 - Use learning trajectories related to mathematical topics and apply this knowledge to sequence activities and design instructional tasks.
 - Know the different formats, purposes, uses, and limitations of various types of assessment of student learning; be able to choose, design, and/or adapt assessment tasks for monitoring student learning.
 - Use the formative assessment cycle and be able to find or create appropriate resources for this purpose.

III. Apply leadership knowledge and skills.

- Plan, develop, implement, and evaluate professional development programs at the school and district level and support teachers in systematically reflecting and learning from practice.
- Use leadership skills to improve mathematics programs at the school and district levels.

3. Rationale:

3.1 Reason for developing the proposed endorsement program:

Kentucky’s Education Professional Standards Board (EPSB) recently approved the creation of an Elementary Mathematics Specialist Endorsement, P-5, for teacher certification. In developing the endorsement, the EPSB relied on the Elementary Math Teacher Standards of the National Council of Teachers of Mathematics (NCTM), an organizational member of the National Council for the Accreditation of Teacher Education (NCATE). In addition, the national Elementary Mathematics Specialist standards prepared by the American Mathematics Teacher Educators (AMTE) have provided guidance for development of new courses, as the standards give more guidance for university programs and courses. A Joint Position Statement by AMTE, ASSM, NCSM, and NCTM recommends the use of Elementary Mathematics Specialists (EMS professionals) in pre-K–6 environments to enhance the teaching, learning, and assessing of mathematics to improve student achievement. Programs for EMS professionals should focus on mathematics content knowledge, pedagogical knowledge, and leadership knowledge and skills.

Elementary mathematics specialists are teachers, teacher leaders, or mathematics coaches who are responsible for supporting effective mathematics instruction and student learning at the classroom, school, district, or state levels. Many education scholars have made the case that practicing elementary school teachers are not adequately prepared to meet the demands for increasing student achievement in mathematics (National Council of Teachers of Mathematics, 2000; National Mathematics Advisory Panel, 2008; National Research Council, 1989). In particular, most elementary teachers are generalists—that is, they study and teach all core subjects, rarely developing in-depth knowledge and expertise with regard to teaching elementary mathematics.

3.2 Relationship of the proposed endorsement program to other programs now offered by the department:

Students in the newly revised MAE and Planned 5th Year/Rank II in Elementary Education for Teacher Leaders are the most likely students to enroll in this program. Students may include the endorsement course work within the Specialization component of the MAE and Planned 5th year programs. In addition, students in the Planned 6th-year/Rank I program in Elementary Education may also elect to incorporate this endorsement within their programs. The EMS can be incorporated in the EdS in Elementary Education as well.

The College of Education and Behavioral Sciences offers 12-hour endorsements in the areas of Gifted Education (grades P-12), Instructional Computer Technology (P-12), and Environmental Education (P-12). Students may complete these endorsements as part of other graduate programs or as stand-alone endorsements, i.e., “certification only.” As with each of the other endorsement programs noted above, the proposed EMS endorsement has its unique characteristics and goals.

3.3 Relationship of the proposed endorsement program to endorsement programs offered in other departments:

Other CEBS endorsement programs outside of the STE are administrative endorsements in EALR and counselor endorsements in C & SA. In Potter College, there is the English as a Second Language (grades P-12) endorsement. The proposed endorsement will not have any course work that overlaps with the other endorsements.

3.4 Projected enrollment in the proposed endorsement program:

Informal surveys indicate that the EMS endorsement will attract approximately 15-20 students per year. The interest level in the courses already in place indicates that this number will increase over the next several years.

3.5 Similar endorsement programs offered elsewhere in Kentucky and in other states (including programs at benchmark institutions):

No other universities in Kentucky offer the proposed endorsement yet, as the guidelines have just been released. However, it is expected that other institutions will also develop similar endorsement programs. Benchmark institutions outside of Kentucky were not included in this examination because this is a Kentucky-certification based endorsement.

3.6 Relationship of the proposed endorsement program to the university mission and objectives:

WKU's Mission states "Western Kentucky University prepares students to be productive, engaged leaders in a global society. It provides service and lifelong learning opportunities for its constituents. WKU is responsible for stewarding a high quality of life throughout its region." Considering the nature of elementary mathematics education, preparing teachers with the EMS endorsement to work in Kentucky schools represents a strong match to WKU's Mission.

In addition, the WKU Quality Enhancement Plan (QEP) has two student outcomes that correspond to the goals of elementary mathematics education and the qualities that teachers with the EMS endorsement demonstrate. These QEP outcomes are:

1. Students will demonstrate their capacity to apply knowledge and training to address relevant concerns in community or society.
2. Students will demonstrate respect for diversity of people, ideas, and cultures.

4. Curriculum:

Fifteen hours will be required, as follows:

Pedagogy requirements - 9 hours

ELED 571: Leadership, Math, and Technology Education (3 credit hours)

ELED 572: Math and Technology Methods for Diverse Learners (3 credit hours)

ELED 573: Math and Technology Assessment (3 credit hours)

Mathematics content requirements – 6 hours (selected with advisor approval)

Required (unless student completed MATH 411 as part of baccalaureate program): (0-3 hours)

MATH 411G: Problem Solving for Elementary and Middle Grades Teachers (3 hours)

Restricted elective(s): (3-6 hours)

MATH 507: Math for Elementary and Middle Grades Teachers (3 hours) OR

MATH 508: Number Concepts for Elementary and Middle Grades Teachers (3 hours)

Students who completed MATH 411 as undergraduates must take both MATH 507 and 508.

Total: 15 hours

5. Budget implications:

Two of the mathematics content courses, MATH 411G and MATH 508, are regularly offered. MATH 507 was designed for the WTEMP program and meets the criteria and needs for this EMS endorsement as another choice. The pedagogy courses are being offered as temporary courses Fall 2010 and Spring 2011. The permanent course proposals for the pedagogy courses have been submitted. The present faculty will teach these courses.

6. Proposed term for implementation:

Fall 2011

7. Dates of prior committee approvals:

School of Teacher Education	11/29/2010
CEBS Curriculum Committee	_____
Professional Education Council	_____
Graduate Council (for information)	_____
University Senate (for information)	_____

References:

National Council of Teachers of Mathematics. (2000). *Principles and standards for school mathematics*. Reston, VA: Author.

National Research Council. (1989). *Everybody counts: A report to the nation on the future of mathematics education*. Washington, DC: National Academy Press.

National Mathematics Advisory Panel. (2008). *Foundations for success: Final report of the National Mathematics Advisory Panel*. Washington, DC: U.S. Department of Education.

**College of Education and Behavioral Sciences
Department of School of Teacher Education
Proposal to Create a New Academic Degree Type
(Action Item)**

Contact Person: Michael McDonald, michael.mcdonald@wku.edu, 5-3097, OR Janet Applin, janet.applin@wku.edu , 5-6105

1 Identification of Academic Degree Type:

1.1 Academic degree type name: Master of Arts in Teaching

1.2 Standard degree type abbreviation: MAT

1.3 Catalog description of academic degree type:

Master of Arts in Teaching program prepares students with appropriate baccalaureate degrees for initial teacher certification at the graduate level. MAT students may come from a wide variety of undergraduate majors, such as art, music, business, English, history, mathematics, modern languages, and the sciences. No background in education courses is required.

2 Rationale:

2.1 Reason for developing the proposed academic degree type:

The proposed MAT has been developed to address the needs of regional constituents, including local education agencies. School districts have a need for highly qualified teachers at the preschool, elementary, middle, and secondary levels in a variety of content areas. This program will allow graduate students holding undergraduate degrees and the content knowledge of their disciplines to acquire pedagogical knowledge and become highly effective educators in their fields. It is the desire of the College of Education and Behavioral Sciences faculty to attract the highest quality students who have a deep knowledge of their respective disciplines to this degree program. Upon completion of the MAT, graduates will be professional educators who possess the dispositions and skills to apply state-of-the-art, evidence-based, best teaching practices to increase student achievement. WKU presently offers four graduate programs that include a pathway for initial teacher certification at the graduate level: MAE in Interdisciplinary Early Childhood Education, MAE in Middle Grades Education, MAE in Secondary Education, and MAE in Special Education: Learning and Behavioral Disorders.* However, with the recent development of the Teacher Leader MAE programs for advanced certification, a new degree type is needed for initial certification at the master's level. The development of the MAT programs will streamline the process of program accountability. The present initial certification concentrations and cohort programs, including the alternate route to certification programs and the GSKyTeach residential program, will be moved to the MAT programs, thus clarifying the focus and mission of the MAEs as being for advanced certification and the MATs as being for initial certification.

*WKU also offers initial certification for professional educators in the MS in Library Media Education, the MS in Communication Disorders, and the EdS in School Psychology. These programs, which do not prepare classroom teachers, will be unaffected by development of the MAT programs.

- 2.2 Document need for academic degree type for professional certification, program accreditation, licensure, career advancement, and/or higher education in the academic field.

Many areas of education are considered “high need” or “shortage” areas in regards to the availability of highly qualified and effective teachers. Math, science, foreign language, and special education teachers are in particular demand. U.S. Department of Education data for 2010-2011 (<http://www2.ed.gov/about/offices/list/ope/pol/tsa.pdf>) indicate shortages in the following areas for the state of Kentucky:

- Biology
- Chemistry
- Engineering Technology
- English – Middle School
- English – Secondary
- English as a Second Language
- Exceptional Children (EBD, FMD, LBD, PD)
- Information Technology
- Mathematics – Middle School
- Mathematics – Secondary
- Science – Middle School
- Social Studies – Middle School
- Social Studies –Secondary
- World Languages

The proposed MAT degree will allow qualified candidates to pursue the pedagogical knowledge required of 21st century teachers and address specific areas of teacher shortages.

Many college graduates with baccalaureate degrees outside of professional education decide after graduation or later in their careers to become teachers. These individuals may have a strong content knowledge background as well as relevant work experience. However, they lack education and training in the best practices for delivering effective instruction and the requirements for being teachers. The MAT is designed to offer students the education and tools to allow them to become highly qualified teachers.

- 2.3 List other universities in Kentucky and in other states (including programs at benchmark institutions) offering this academic degree type:

Kentucky

- Bellarmine
- Eastern Kentucky University
- Morehead State University
- Northern Kentucky University
- University of the Cumberlands
- University of Louisville
- University of Kentucky

Benchmark Universities

- Ten of our nineteen benchmark universities offer MAT programs for varying areas
- Eastern Michigan University (in the process of developing an MAT program)
- California State University-Chico and Middle Tennessee State University offer their MAT degree in International and Foreign Language areas only

- 2.4 Evidence that this academic degree type is recognized by relevant professional organization(s), regional accreditor(s), and/or the Department of Education: MAT programs at other institutions are accredited by NCATE, and those in Kentucky are recognized and approved by the Kentucky Education Professional Standards Board. All programs listed in 2.3 above have been approved by the EPSB (if in Kentucky) and NCATE.
- 2.5 Relationship of the proposed degree type to other academic degree types now offered by the university:
WKU presently offers four graduate programs that include a pathway for initial teacher certification at the graduate level: MAE in Interdisciplinary Early Childhood Education, MAE in Middle Grades Education, MAE in Secondary Education, and MAE in Special Education: Learning and Behavioral Disorders. The initial certification concentrations/alternatives within each of the programs named above will move to the MAT. The MAT will be similar to the MAE in that both degree types focus on development of professional educators. However, the MAT will be for students with no background in professional education who seek to become teachers, while the MAE will be reserved for students who already are teachers and seek to advance their knowledge and skills.
In addition to the MAEs for advanced certification, WKU offers a small number of MA and MS programs that lead to advanced certification; these will be unaffected by the creation of the MAT.
- 2.6 Current WKU major(s) qualifying for this degree type:
- Interdisciplinary Early Childhood Education (initial certification concentration)
 - Middle Grades Education (Alternate Route to Teacher Certification)
 - Secondary Education (Alternate Route to Teacher Certification; GSKyTeach)
 - Exceptional Education: Learning and Behavioral Disorders (initial certification concentration)
- *Note that while there is no present graduate program or concentration for initial certification in Elementary Education, an MAT program designed for this purpose will be proposed.
- 2.7 Projected number of annual graduates in the proposed degree type:
- Secondary – 20-30 per year
 - Middle Grades – 20-30 per year
 - Elementary Education – 25-50 per year
 - Special Education - 100 per year
 - Interdisciplinary Early Childhood Education – 15 per year

All estimates, except those for Elementary Education, are based upon present enrollments in the initial certification concentrations/alternatives within the MAE programs in Middle Grades Education, Secondary Education, Interdisciplinary Early Childhood Education, and Special Education: Learning and Behavioral Disorders. The Elementary Education estimate is based upon the number of inquiries received regarding graduate level-initial certification as well as on the number of students enrolled in the post-baccalaureate certification-only program for Elementary Education. In addition, every year there are several students who complete a second baccalaureate degree in Elementary Education, and it is presumed that most or all of those who complete second bachelor's degrees or certification-only programs would prefer to enroll in a master's degree program if one were available, as MAT

graduates would qualify for a higher pay status as new teachers.

3 **Proposed term for implementation:** Spring 2012, or as soon as all approvals have been attained. In addition to approval by the institution's internal curricular change bodies, the Board of Regents, and the CPE, the proposed MAT programs must be approved by Kentucky's Education Professional Standards Board. Students in the present MAE programs may be allowed to transfer to the corresponding MATs. Those who elect to continue in their current MAE programs will be allowed a period of time to complete them, but they will be informed of a deadline by which they must have completed their programs. Once the MATs are approved, students seeking initial certification will no longer be admitted to the MAEs, and the initial certification concentrations and provisions in those MAEs will be deleted through the appropriate program revision process.

4 **Dates of prior committee approvals:**

School of Teacher Education:	<u>October 15, 2010</u>
CEBS Curriculum Committee	_____
Consultation with CPE through Provost's Office	_____
Professional Education Council	_____
Graduate Council	_____
University Senate	_____
Board of Regents	_____

Information Item

MEMO TO: Curriculum Committees

FROM: Retta E. Poe, CEBS Associate Dean for Academic Programs

DATE: 11/15/10

SUBJECT: Clarification of codes for the Director of Special Education certification programs

Please note the following changes regarding the concentration codes for Director of Special Education:

- The PDS code should be deleted wherever it appears, as it is no longer used by Kentucky’s Education Professional Standards Board. The PDS code was replaced several years ago by KDS1 and KDS2.
- The KDS1 and KDS2 concentration codes for Director of Special Education should be deleted from reference code #121 (Planned 6th year/Rank I in Educational Administration) in the Dept. of Educational Administration, Leadership, and Research, and added to reference code #0426 (Planned 6th year/Rank I - Director of Special Education) in the School of Teacher Education.
- The KDS1 and KDS2 concentration codes for Director of Special Education should be deleted from reference code #131 (certification-only in educational administration) in the Dept. of Educational Administration, Leadership, and Research, and added to reference code #132 (certification-only in teacher education) in the School of Teacher Education.

These changes, which represent an updating of the certification codes used by the Education Professional Standards Board, are being made so that the proper certification codes are located administratively in the academic unit that offers the programs.

CEBS Curriculum Committee

Professional Education Council

Graduate Council

University Senate

Information Item

MEMO TO: Curriculum Committees

FROM: Retta E. Poe, CEBS Associate Dean for Academic Programs

DATE: 11/22/10

SUBJECT: Clarification of certification codes for school counseling graduate programs

The following teacher certification codes should be attached to the Planned 6th Year/Rank I program in School Guidance, #048:

- KGCS – Standard Guidance P-12
- KE37 – Gifted Education endorsement
- IIA – Individual Intellectual Assessment endorsement

It was recently determined that while the first two codes are already attached to program #048, the third one, for Individual Intellectual Assessment, is not, even though students in the 048 program sometimes seek and receive recommendations for the IIA endorsement. This memo is intended to clarify that the IIA certification code should be attached to the Planned 6th Year/Rank I program in Guidance.

CEBS Curriculum Committee

Professional Education Council

Graduate Council

University Senate
