

**FY2009 DEPARTMENTAL ANNUAL REPORT
OF CONTINUOUS IMPROVEMENT**

**Department of Mathematics and Computer Science
Fort Hays State University**

June 30 2009

I. DEPARTMENTAL OVERVIEW

The coming year is an interesting year of hard work, overloads, and opportunities for the mathematics department. Dr. Riazi is the department's new chair. Dr. Anyanwu and Dr. Zeng are coming back to teach computer science and mathematics courses. Dr. Dreiling and Dr. Young are our Math Education experts and are working super hard to educate our future mathematics teachers. Jeffery Sadler is planning to complete his Ph.D. within a year so he can get his tenure. Donald Clewett is back as a full time faculty, teaching and working on his dissertation. Bill Weber passed his preliminary exam and is closer to finishing his Ph.D. Mary Kay Schippers, Michelle Zeng, Darlene Plymell, Pat Luea, and Judy Brummer are coming back to teach their classes.

Two words that are often used to describe our society in the 21st century are technology and change. Both words are fundamental to the mission and vision of the Department of Mathematics and Computer Science. Technology is driven by not only the advances in hardware and related devices; but, also, by the software that makes those devices useful to the user. The discipline of computer science with our major in software engineering is focused to produce majors who can develop software, using current methodologies, to be used on these devices. Our curriculum prepares students to become Java certified before they graduate. Java programs are the engine that drives the internet. The discipline of mathematics has provided for 300 years and continues to provide the language and tools necessary to describe and analyze changes in society. These students are well prepared to enter the industrial work place, government security agencies, as well as the teaching profession. Employment prospects are currently good, and future projections indicate strong demand for all of our graduates. Salaries for computer science graduates are excellent with many growth opportunities within companies. Unfortunately, salaries for education are dismal even though the job market is not close to being satisfied. Enrollments in both areas are not reflective of the demand, and our enrollment patterns are no different when compared with the national trends.

A. Departmental Mission and Vision Statements

Department Vision Statement

The Department of Mathematics and Computer Science aspires to hire, retain, and support faculty from diverse backgrounds with varied interests who are recognized locally, regionally, and nationally to be dedicated, effective teachers, active scholars, and service minded; and who work collegially within a supportive environment to provide curricula in:

- A) Computer Science so
 1. Students gain and develop foundation skills and concepts enabling them to adapt to quickly changing technologies.
 2. Students have opportunities to become certified in internet interactive languages.
 3. Students are competent in current technologies, methods, and procedures.
 4. Students have a fundamental understanding of computer science concepts allowing them to pursue further study.

5. Students are exposed to and appreciate the usefulness of computer science in society.
6. Students seek to be part of the premier institution within the State of Kansas for the education of computer application programmers.

B) Mathematics so

1. Students possess a fundamental understanding of the basics of mathematics.
2. Students are exposed to the study and appreciation of the concepts and methods thereby promoting interest and understanding in mathematics.
3. Students are prepared for further undergraduate and graduate studies in mathematics, the sciences, and other areas.
4. Students are exposed to and appreciate the usefulness of mathematics as a universal language of the diverse society in which we live.
5. Students seek to be part of the premier institution within the State of Kansas for the education of middle and secondary level mathematics teachers.

Department Mission Statement

The Department of Mathematics and Computer Science awards both the Bachelor of Arts and Bachelor of Science in Mathematics; and the Bachelor of Science (Applied) in Computer Science. The undergraduate major programs meet the needs of students who: (a) are preparing to teach mathematics at the middle, secondary or two-year college level; (b) plan a career in business and industry using computers and mathematics; or (c) plan to continue to study mathematics or computer science at the graduate level. Depending on their career goals, students choose one of two emphases: Teaching or Industrial/Academic, in the mathematics major; or one of six software development emphases in the computer science major. Furthermore, courses are provided for students who require knowledge of mathematics or computing as part of liberal education, or in preparation for varied fields of study.

B. Departmental Goals, Objectives, and Strategic Priorities

1. Create a Math Tutoring Center.
2. Develop a MATLAB center so students in higher level mathematics courses can do their projects with the most advanced technology available.
3. Develop a problem-solving study group in connection with our Thursday Seminar.
4. Increase the number of students interested in teaching mathematics at the middle, secondary, and college level by use of two new endowed scholarships.
5. Continue to press the Kansas Legislature to provide forgivable financial awards to those students choosing to teach mathematics at the secondary level.
6. Develop courses around the theme of Computer Forensics which could lead to a certificate.
7. Encourage students to gain Java certification.
8. Develop projects/activities for all lower level and general education courses that make use "Mobile Computing" in terms of an on-line graphing calculator, Excel Spreadsheet, or MAPLE Software which is a sophisticated mathematical software package.

C. Department Productivity and Distinctive Accomplishments

Dr. Sandstrom and Dr. Riazi served in various committees to have the first class of the Kansas Academy of Mathematics and Science at FHSU. Appropriate changes were made to schedules to incorporate the incoming bright students into our classes.

The spring meetings of the mathematics faculty from institutions across the state have encouraged participation of undergraduate and graduate students in paper or poster sessions. During the past three years there has also been an undergraduate problems solving contest. This year FHSU had two teams of three each compete in the contest. This year one team placed 6th and the other 12th

Bill Weber passed his preliminary exams and now he is ABD. Don Clewett finished his coursework and passed his preliminary work and he is also ABD.

II. DEPARTMENTAL PERFORMANCE METRICS

A. Department Performance Indicators

Key Performance Indicator	FY2005	FY2006	FY2007	FY2008	FY2009
Freshmen	7	22	15	20	20
Transfer Students	8	8	14	10	12
Undergraduate (first majors/second majors)	59/6	81/4	88/8	90/6	92/1
MLS Majors	4	3	1	2	2
Major Retention	59.25%	77.58%	67.08%	66.28%	65.48%
Undergraduate Student Credit Hours	6705	6448	6434	6757	7076
Graduate Student Credit Hours	103	77	158	148	116
Tenured or Tenure-track Faculty (Headcount)	6	7	6	6	7
Non Tenure-Track Faculty (Headcount)	4	3	4	5	4
Other Faculty (Headcount/Sections Taught)	3/9	3/9	2/8	3/9	3/9
Undergraduate Degrees	6	9	8	15	13
Briefly note 2-3 improvements over the last year prompted from the above enrollment indicators.					
Number of books, book chapters, and refereed articles published	0	9	12	6	6
Percent of faculty publishing refereed books, chapters, or articles	0/0	6/10%	6/10%	6/10%	30%
Number of non-refereed articles and presentations	40	50	55	52	54
Percent of faculty publishing non-refereed articles or presentations	100%	100%	100%	100%	100%
Number of scholarly performances and other creative	21	21	8	16	18

Key Performance Indicator	FY2005	FY2006	FY2007	FY2008	FY2009
activities					
Percent of faculty in scholarly performances or other creative activities	100%	100%	100%	100%	100%
Total number of external grant applications submitted/percent of faculty submitting	2/20%	4/40%	4/40%	3/30%	1/10%
Total number of funded external grants/percent of faculty funded	2/100%	2/50%	2/50%	2/67%	1/10%
Briefly note 2-3 improvements over the last year prompted from the above scholarly/creative activities indicators. Dr. Anyanwu, the new computer science faculty presented papers which increased the number of presentations. Dr Zeng published solutions to problems which increased the number of scholarly publications.					
[NOTE: Each department MUST report at least two direct measures of student learning outcomes and two indirect measures. Examples of direct measures include: first-time pass rate or average scores on standard exit exam, number of students successfully completing reviewed portfolios. Indirect measures would include student satisfaction, alumni and employer data, or any other perception based data.]					
Direct Outcome 1 Monitor the correlation coefficient between scores on posttest and grades in College Algebra.	.795 (spring)	.747 (spring)	.754 (spring)	.743 (spring)	.718 (spring)
Direct Outcome 2 Monitor the percentage of (A-B-C-D) students obtaining 70% or better on the final exam in College Algebra.	44 (spring) fall data available	54 (spring)	48 (spring)	63 (spring)	58 (spring)
Indirect Indicator 1 We get some notes from our former students and they seem to be happy with whatever they are doing. We do not have any specific data at this point.					
We need to get more information from alumni and employers to know what is really going on. At this point we take pride in our alumni who earned Ph.D. degrees.					
Senior students' Level of Academic Challenge			55.50	52.40	50.11
Senior students' Active and Collaborative Learning			42.73	53.81	44.76
Senior students' Student-Faculty Interaction			38.89	43.33	53.33
Senior students' Enriching Educational Experiences			29.37	32.54	38.49
Senior students' Supportive Campus Environment			48.33	59.44	56.11

Key Performance Indicator	FY2005	FY2006	FY2007	FY2008	FY2009

C. Department Quality Initiatives and Results

FY2009 Quality Initiatives	Results
Create a Mathematics Tutoring Center.	Dr. Riazi will develop an Action Plan designating a room and accompanying student labor resources required.
Research will be more emphasized and focused.	Faculty will be asked to focus their scholarly activities on well-defined subjects of mathematics and computer sciences.

FY2010 Quality Initiatives	Responsible Party, Resources, and Plan
Improve the quality of our seminars by developing a technical writing course as pre-seminar.	A faculty member will be assigned to monitor students and prepare them for writing their seminar papers in a correct format
Faculty will be asked to present and publish more focused articles.	A scholarly activity committee will overlook and make recommendations to the faculty to move in the right direction.

D. Institutional Quality Results

FY2009 University Initiatives	Department Activities/Results
Increase access and retention for Hispanic students	We respect all ethnic groups and we do not discriminate against anyone. If you like mathematics and computer science we are at your service.
Increase the quantity and quality of K-12 teachers educated	With our excellent faculty members we teach future teachers to be innovative, informed, open-minded and hard working.
Improve undergraduate students' foundational skills	With constant monitoring and advising our students, they have no way to go but to improve their skills. We encourage technology and critical thinking as well as reading mathematical journals and writing papers and solving problems.
Enhance physical wellness of students, faculty, and staff	Fortunately most our faculty are young and healthy. Some old ones(speaking of myself) need more encouragement to exercise and stay in shape.
Internationalize the campus and curriculum	Fortunately our department is probably the most diverse department on campus. We have faculty from five different countries and students from all over the world. What else we can ask for?

III. FY2009 STRATEGY AND OPPORTUNITIES FOR IMPROVEMENT

A. Departmental Reflection of Strengths, Needs, Opportunities, and Threats

Current Strengths	Current Needs
Excellent teachers as evidenced by ratings on TEVAL. We have competent and energetic faculty. There is so much potential to do quality research and teaching if the reward system points toward that direction.	Overload teaching is taking quality time from professors and it will have a negative effect on their research activities. We need more faculty members and we need to pay our current faculty more, to keep them away from overload teaching. Research should be more emphasized and rewarded.
Future Opportunities	Future Threats
More on-line computer science courses. A new faculty member in computer science has an interest in developing said courses. Expand offerings for pre/in-service middle school teachers.	Lack of competing salaries for secondary mathematics teachers makes future enrollment increases unlikely. KSDE has recently instituted a policy where by students can become endorsed to teach mathematics by completing just 50% of our approved program. Hence, students have little incentive to have declare mathematics major.

B. Opportunities for Improvement

[NOTE: Long-term OFIs are meant to be resource-intensive changes requiring permanent or one-time resources that can favorably impact the department over the long-term.]

Long-Term Strategic Initiatives	Resources Required	Expected Result
The department currently supplies MATLAB software to the students in 206 RH computer lab. When that lab is discontinued, students will have to have that software on their computers. Because of security issues the software costs will increase 10 fold.	\$5000	Software is needed for three different upper level courses.

IV. SUPPORTING MATERIALS

A. Department Degree Program Affinity Diagram(s)

**Department of Mathematics and Computer Science
Affinity Diagram for Computer Science Program**

Characteristics of Computer Science Program	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods	Results	Curricular and/or Pedagogical Changes
<p>Knowledgeable They use theories, terminology, and skills to model real world situations.</p> <p>Problem Solvers They model real world situations.</p> <p>Analytical/Precise They use higher level reasoning skills to solve problems.</p> <p>Creative/Flexible They analyze problems from a fresh perspective.</p> <p>Strategy Minded They see the big picture including the political, social, and economic context of which they are a part.</p> <p>Innovative/Adaptive They are knowledgeable about new technologies and how to deploy them.</p> <p>Dedicated/Patient</p>	<p>Goal To model real world situations.</p> <p>Objective #1 The learner will demonstrate the ability to define a problem clearly.</p> <p>Goal To analyze software problems resulting from a real world situation.</p> <p>Objective #1 The learner will demonstrate the ability to determine a problem's tractability.</p> <p>Objective #2 The learner will demonstrate the ability to determine when consultation with outside experts is appropriate.</p> <p>Objective #3</p>	<p><u>A. Program Core Curriculum</u> <i>Develops Knowledge</i> CSCI 261 Computer Science I (C) CSCI 345 Logical Foundations of Computing CSCI 361 Computer Science II (C++) CSCI 363 Computer Operating Systems CSCI 365 Systems Architecture CSCI 465 Programming Languages CSCI 562 Data Structures and Algorithm Design</p> <p>Develops Skills CSCI 369 Java Programming CSCI 466 Software Engineering I CSCI 564 Networks and Data Communication CSCI 566 Software Engineering II <i>Develops Perspective</i> CSCI 160 Orientation to Computer Science CSCI 322 Interactive Systems Design CSCI 567 Internship</p> <p><u>B. Cognate Focus</u></p>	<p>Program</p> <ul style="list-style-type: none"> • Five year program review as developed by Fort Hays' College of Arts & Sciences • Survey student and employer satisfaction with program and graduates. The results are used to improve the program • Collect outcome information relating to program goals • Entrance and exit testing of students <p>Students</p> <ul style="list-style-type: none"> • The student will prepare a portfolio illustrating the range of knowledge, 		

<p>Characteristics of Computer Science Program</p>	<p>Expected Learning Outcomes</p>	<p>Curriculum</p>	<p>Assessment Approach and Methods</p>	<p>Results</p>	<p>Curricular and/or Pedagogical Changes</p>
<p>They continue to work on problems that do not meet with immediate success.</p> <p>Cooperative They are team players and see the end-user's point of view.</p> <p>Competitive/Desire to Improve They are aware of marketplace dynamics and organizational realities; they stay ahead of change by initiating change.</p> <p>Communicative They express themselves effectively in oral and written discourse.</p>	<p>The learner will demonstrate the ability to evaluate and choose an appropriate solution strategy.</p> <p>Objective #4 The learner will demonstrate the ability to study, specify, design, implement, test, modify, document, and maintain that solution.</p> <p>Goal To be knowledgeable about new technologies and how to deploy them.</p> <p>Objective #1 The learner will demonstrate the ability to evaluate alternatives and perform risk analysis on that design.</p> <p>Objective #2 The learner will demonstrate the</p>	<p><u>Tracks</u> (<u>Select one Track and take up to 23 hrs.</u>)</p> <p>Track 1: Business Emphasis ACCT 203 Financial Accounting ACCT 204 Managerial Accounting CIS 304 Management Information Systems ECFI 305 Managerial Finance MGT 301 Management Principles MKT 301 Marketing Principles MGT 408 Production Management</p> <p>Track 2: Mathematics Minor MATH 235 Analytical Geometry and Calculus II MATH 236 Analytical Geometry and Calculus III MATH 240 Linear Algebra MATH 350 Introduction to Mathematical Statistics MATH 545 Discrete Structures or MATH 354 Differential Equations MATH 665 Numerical Analysis</p> <p>Track 3: Geographic Applications Emphasis GSCI 000 Cartography: Theory and Applications GSCI 240 Introduction to Geographic Information Systems</p> <p>GSCI 000 Advanced Geographic</p>	<p>skills and perspective possessed.</p> <ul style="list-style-type: none"> • Written examinations and completion of laboratory projects in all required courses • Capstone course: Software Engineering II and Internship to satisfy learning-in-context • Formal and informal student needs assessment • Transcript analysis 		

Characteristics of Computer Science Program	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods	Results	Curricular and/or Pedagogical Changes
	<p>ability to integrate alternative technologies in that solution.</p> <p>Goal</p> <p>To possess a computer science maturity that enables them to read, analyze, and communicate logically and effectively in a professional situation.</p> <p>Objective #1</p> <p>The learner will demonstrate the ability to communicate the solution of a problem to colleagues, professionals in their field and to the general public.</p> <p>Objective #2</p> <p>The learner will demonstrate the ability to be able to think logically and make appropriate decisions based on critical thinking.</p> <p>Goal</p>	<p>Information Systems GSCI 461 Computer Applications GSCI 474 Aerial Photo GSCI 000 Remote Sensing</p> <p>Track 4: Physics Emphasis PHYS 211 Physics for Scientists and Engineers I PHYS 211L Physics for Scientists and Engineers I Lab MATH 235 Analytical Geometry and Calculus II PHYS 212 Physics for Scientists and Engineers II PHYS 212L Physics for Scientists and Engineers II Lab PHYS 213 Computational Physics PHYS 521 Mechanics</p> <p>Track 5: Technology Studies Emphasis TECS 110 Communication Systems TECS 130 Production Systems TECS 200 Engineering Graphics TECS 318 Computer Aided Drafting TECS 430 Computer Aided Manufacturing TECS 560 Training and Instructional Systems TECS 580 Industrial Management TECS 590 Occupational Safety, Health and Liability</p>			

Characteristics of Computer Science Program	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods	Results	Curricular and/or Pedagogical Changes
	<p>To see the political, social, and economic context of a problem.</p> <p>Objective #1 The learner will demonstrate the ability to be an effective problem solver, using optimization techniques to obtain a best solution.</p> <p>Objective #2 The learner will demonstrate the ability to be capable of reading undergraduate software engineering, of comprehending the concepts, and of communicating the ideas to others using available technology.</p>				

Department of Mathematics and Computer Science
Affinity Diagram for Mathematics Education Program
6/19/06 (revisions from 9/27/06)

Characteristics of Mathematics Education Program	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods	Results	Curricular and/or Pedagogical Changes

<p align="center">Characteristics of Mathematics Education Program</p>	<p align="center">Expected Learning Outcomes</p>	<p align="center">Curriculum</p>	<p align="center">Assessment Approach and Methods</p>	<p align="center">Results</p>	<p align="center">Curricular and/or Pedagogical Changes</p>
<p align="center">Knowledgeable</p> <p>Graduates apply mathematical concepts and theories appropriately. Graduates apply educational pedagogies and theories appropriately. Graduates know how to use available mathematics educational materials and technology.</p> <p align="center">Analytical/Precise</p> <p>Graduates use higher level reasoning skills especially those tied to the logic of mathematics, to solve problems.</p> <p>Graduates recognize and construct a valid mathematical argument.</p> <p align="center">Dedicated/Desire to Improve</p> <p>Graduates adjust teaching strategies to fit the learning styles of their students.</p> <p>Graduates are aware of and participate in related professional organizations.</p> <p align="center">Innovative/Adaptive</p> <p>Graduates are aware of new learning theories and teaching strategies and are open to trying them.</p> <p>Graduates are aware of new technologies and materials that can be used in the teaching of mathematics and are open to trying them.</p> <p align="center">Communicative</p> <p>Graduates express themselves effectively in oral and written discourse.</p> <p align="center">Cooperative</p> <p>Graduates work well with others within their educational institutions, departments, and classrooms.</p>	<p align="center">Goal</p> <p>To be prepared to teach mathematics at the 6-12 level.</p> <p>Objective #1 Graduates will exhibit adequate communication skills.</p> <p>Objective #2 Graduates will exhibit skills in curriculum planning and implementation.</p> <p>Objective #3 Graduates will exhibit a high level of competency of the mathematics taught at the 6-12 level.</p> <p>Objective #4 Graduates will demonstrate appropriate teaching strategies.</p> <p align="center">Goal</p> <p>To model real world situations.</p> <p>Objective #1 Graduates will demonstrate the ability to define a real world situation clearly.</p> <p>Objective #2 Graduates will demonstrate the ability to simulate a real world situation by choosing appropriate methods, materials, and technology.</p> <p align="center">Goal</p> <p>To apply appropriate techniques to analyze mathematical and educational problems.</p> <p>Objective #1 Graduates will demonstrate the ability to evaluate and choose an appropriate solution strategy.</p> <p>Objective #2 Graduates will</p>	<p>Program Core Curriculum Develops Knowledge/Skills</p> <p>MATH 234,235,236 Analytical Geometry and Calculus I, II, and III MATH 240 Linear Algebra MATH 250 Elements of Statistics CSCI 261 Computer Science I MATH 350 Mathematical Statistics MATH 610 Higher Algebra MATH 620 Modern Geometry</p> <p>Develops Perspective</p> <p>MATH 276 Apprenticeship-Mathematics MATH 277 Early Field Experience: Mathematics Education MATH 370 History of Mathematics MATH 381 Teaching of Secondary School Mathematics MATH 675 Seminar in Mathematics MATH Elective</p>	<p align="center">Program</p> <p>Employment Survey: Yearly collection of data on types of employment of graduates to determine whether graduates obtain employment matching the candidate's option. Results are used to advise students in making career choices.</p> <p>Alumni Survey: Survey graduates five years after graduation to determine their perception of their mathematics education in preparing them for careers and further education. Results are used to evaluate whether the curriculum is current and appropriate.</p> <p>Model Programs: Collect from American Mathematical Society, Mathematics Association of America, National Council of Teachers of Mathematics, Association of Computing Machinery examples of suggested curricula. Results are used to compare the major curricula against national standards.</p> <p align="center">Individual Achievement</p> <p>Capstone Course: All candidates enroll in Seminar in Mathematics in which the individual student selects a topic, researches it, writes a paper, and gives an oral presentation to the seminar group. All faculty read the paper and attend the talk. The candidate's grade is then assigned by departmental consensus. Success requires the ability to work independently, synthesize and extend mathematical knowledge and the ability to communicate that knowledge to others.</p>		

Characteristics of Mathematics Education Program	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods	Results	Curricular and/or Pedagogical Changes
	<p>demonstrate effective problem solving techniques to obtain a valid solution to a problem.</p> <p>Goal To think logically and make appropriate decisions based in critical thinking.</p> <p>Objective #1 Graduates will demonstrate the ability to follow and exhibit a logical mathematical argument.</p> <p>Objective #2 Graduates will demonstrate proofs of elementary theorems.</p> <p>Goal To possess a mathematical and technical maturity which enables them to read, analyze, and communicate logically and effectively in a professional situation.</p> <p>Objective #1 Graduates will demonstrate the ability to read undergraduate mathematics and comprehend the concepts.</p> <p>Objective #2 Graduates will demonstrate the ability to communicate solutions and ideas to others using available technology.</p>		<p>Portfolio: All candidates will prepare a portfolio illustrating the range of knowledge, skills and perspective possessed</p>		

**Department of Mathematics and Computer Science
Affinity Diagram for Mathematics Program**

Characteristics of Mathematics Program	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods	Results	Curricular and/or Pedagogical Changes
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Characteristics of Mathematics Program	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods	Results	Curricular and/or Pedagogical Changes
<p>Knowledgeable They apply qualitative and quantitative methods to solve problems. They use mathematical theories, terminology, and skills to model real world situations. They are familiar with a broad range of areas within mathematics, the terminology, major theorems, and methods of argument. They apply a broad knowledge to obtain new theoretical results or practical applications.</p> <p>Logical They express mathematical thoughts in a way that can be clearly understood by others. They carefully consider assertions before accepting or rejecting them.</p> <p>They have the ability to construct and follow a step-by-step logical argument.</p>	<p>Goal To model real world situations. Objective #1 To define a problem clearly.</p> <p>Goal To apply appropriate techniques to analyze mathematical problems resulting from a modeled real world situation. Objective #1 To evaluate and choose an appropriate solution strategy. Objective #2 To be an effective problem solver using optimization techniques to obtain the best possible solution to a problem.</p> <p>Goal To follow and exhibit a logical mathematical argument. Objective #1 To communicate a solution to colleagues, professionals in the field, and the general public.</p>	<p>Program Core Curriculum Develops Knowledge/Skills MATH 234,235,236 Analytical Geometry and Calculus I, II, and III MATH 240 Linear Algebra MATH 250 Elements of Statistics CSCI 261 Computer Science I MATH 350 Introduction to Mathematical Statistics MATH 354 Differential Equations MATH 510 Higher Algebra Or MATH 546 Discrete Structures MATH 531 Advanced Calculus MATH 665 Numerical Analysis</p> <p>Develops Perspective MATH 575 Seminar</p>	<p>Program Employment Survey: Yearly collection of data on types of employment of graduates to determine whether graduates obtain employment matching the student's option. Results are used to advise students in making career choices.</p> <p>Alumni Survey: Survey graduates five years after graduation to determine their perception of their mathematics education in preparing them for careers and further education. Results are used to evaluate the timeliness and appropriateness of the curricula.</p> <p>Model Programs: Collect from American Mathematical Society, Mathematics Association of America, National Council of Teachers of Mathematics, Association of Computing Machinery examples of suggested curricula. Results</p>		

Characteristics of Mathematics Program	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods	Results	Curricular and/or Pedagogical Changes
			<p>are used to compare the major curricula against national standards.</p> <p>Individual Achievement Capstone Course: All students enroll in Seminar in Mathematics in which the individual student selects a topic, researches it, writes a paper, and gives an oral presentation to the seminar group. All faculty read the paper and attend the talk. The student's grade is then assigned by departmental consensus. Success requires the ability to work independently, synthesize and extend mathematical knowledge and the ability to impart that knowledge to others. Faculty assesses the appropriateness of the individual student's major courses.</p> <p>Portfolio: All students will prepare a portfolio illustrating the range of knowledge, skills</p>		

Characteristics of Mathematics Program	Expected Learning Outcomes	Curriculum	Assessment Approach and Methods	Results	Curricular and/or Pedagogical Changes
			and perspective possessed.		

B. Department Staffing Plan

College of Arts and Sciences
 Department Staffing Plan and Assignments (**Current**)
 Department of Mathematics and Computer Science
 Date Completed June 26, 2008

(1)	(2)	(3)	(4)	(5)	(6)
Current Department Needs	Faculty Member	Current Faculty Expertise	Birthdates	Assigned Instructional FTE's	Rank Current
Analysis Elementary Statistics Statistics Applied	D. Clewett	Applied	NA	1.0	Instructor 2006
Analysis Computer Science Applied	L. Anyanwu	Applied Computer Science	NA	1.0	Assoc. Prof. 200
Upper Algebra Teacher Education Liberal Arts Elementary Statistics	W. Weber	Education	07/10/1975	1.0	Instructor 2004
Analysis Computer Science Applied	H. Zeng	Applied Computer Science	07/16/1967	1.0	Assoc. Prof. 20
Upper Algebra Analysis Geometry Elementary Statistics Statistics Applied	M. Riazi-Kermani	Analysis	11/18/1944	1.0	Professor 1998
Computer Literacy Teacher Education Liberal Arts Elementary Statistics	M.K. Schippers	General	11/12/1956	.5	Instructor 1998
Computer Literacy	K. Dreiling	Education	12/24/1960	1.0	Assist. Prof. 200

Teacher Education Liberal Arts Elementary Statistics					
Analysis Teacher Education Elementary Statistics	J. Sadler	Education	09/28/1963	1.0	Instructor 2000
Computer Literacy Teacher Education Elementary Statistics	L. Young	Education	07/06/1973	1.0	Assist. Prof. 2000
Liberal Arts	M. Zeng	Education	10/16/1965	1.0	Instructor 2001

Diversity Ratio = Tenure

C. Bibliography of Departmental Scholarly Activity

“Anonymity Leakage Reduction in Network Latency,” *International Joint Conference on Computer, Information, and Systems Sciences, and Engineering (CISSE 08)*, paper #52, Bridgeport, CT, December 5-13, 2008

“Using Technology Tools to Enhance Collaborative Learning,” *Association for the Advancement of Computing in Education (AACE)*. Site 2009 Conference, Charleston, SC, March 2-6, 2009

“Achieving Greater Anonymity in Network Latency,” *6th International Conference on Information Technology, New Generations (ITNG 2009)* Sponsored by the IEEE Computer Society, Las Vegas, NV, April 27-29, 2009

“Choose Topics for MACS Seminar,” *The Journal of Computing Sciences in Colleges*, Volume 23, Number 6, Page 119-125, June 2008

Solution to Problem 861 from *The College Mathematics Journal* credited Vol. 39, No. 5, Page 404, November 2008

Solution to Problem 858 from *The College Mathematics Journal* credited Vol. 39, No. 4, Page 313, September 2008

Solution to Problem 856 from *The College Mathematics Journal* credited Vol. 39, No. 4, Page 309, September 2008

Off campus presentations

“Choose Topics for MACS Seminar”, CSCC SC 20th Annual Conference, Corpus Christi, TX, April 19-20, 2008

“Count a Special Feasible Set,” 2008 MAA Kansas Section Meeting at Bethel College, Newton, KS, May 2-3, 2008

“The Introductory Session of College Algebra,” Joint Mathematics Meetings at San Diego, CA, January 2008

Submitted solutions to problems S125 and S126 in *Math Horizons Magazine* credited September 2008

Presented NEED TITLE at KATM conference in Overland Park, KS, November 6-8, 2008
 Presented at SMARTT conference in San Francisco, CA. NEED TITLE

Grants

Developed, wrote, and submitted a proposal for KSDE MSP grant

Submitted papers

Peer review paper for CCSC SC 20th Annual conference

Off campus Workshops

““The Introductory Session of College Algebra,” Joint Mathematics Meetings at San Diego, CA, January 2008

Peer review paper for CCSC SC 20th Annual conference

D. Department Program Assessment Results

	Pre/post/grades	College Algebra	Spring 2008
Pretest	0 to 25		
	sample	sample standard	number of
section	mean	deviation	students
1	14.85	4.49	26
2	11.50	3.31	26
3	13.21	3.10	28
4	12.78	3.84	23
5	12.50	3.44	24
6	13.10	3.13	20
7	17.50	2.61	18
totals	13.94	3.64	121

	Pre/post/grades	College Algebra	Spring 2008
Grades	4-A 3-B 2-C 1-D 0-U		
	sample	sample standard	number of
section	mean	deviation	students
1	1.81	1.41	26
2	1.92	1.17	26

3	2.46	0.98	28
4	1.22	0.93	23
5	2.21	1.00	24
6	1.60	1.28	20
7	3.33	1.00	18
totals	2.05	1.27	165

Pre/post/grades College Algebra Spring 2008			
Posttest 0 to 44			
section	sample mean	sample standard deviation	number of students
1	26.04	7.39	26
2	22.23	8.77	26
3	24.86	7.35	28
4	17.43	5.88	23
5	21.75	6.97	24
6	22.65	8.79	20
7	34.22	5.34	18
totals	23.90	8.60	165

Pre/post/grades College Algebra Spring 2008
Correlation coefficient between pretest and grades is
0.374 with total number of points 165

Correlation coefficient between posttest and grades is
0.718 with total number of points 165

