I understand that the current prerequisite design enables students to enter the program at different times during their years at FSC. However, handling abstract algebra with potentially only two college level courses (the first calculus course and the sets, relations, functions course) can be a struggle for many students. Also, it is apparent from the 1996 report that the intention is for the twelve hours of calculus and six hours of logic and sets, relations, and functions to serve as the foundation.

This brings us to another strength of mathematics at Fairmont State: the interaction between students and faculty, which is facilitated by the Seminar Room in the mathematics faculty offices area. It was quickly clear upon my arrival in the mathematics area, that students are comfortable with faculty, that faculty work closely with students, and that the challenging courses are possible because of this interaction. It is truly a refreshing interaction referenced by students during lunch as one of the strengths that has made it possible for them to be successful in mathematics. Students seem to genuinely enjoy being a mathematics major at FSC and would like to see more students in mathematics. The students commented that sometimes courses they needed to take were not offered or were canceled due to low enrollments. Students also expressed lack of knowledge as to what they might do with a degree in mathematics other than graduate school or teaching. Both of these are common comments from students; however, they should be addressed. For example, the schedule for course offerings can be publicized well in advance so, if a course is only a spring term course in even numbered years, publicize this (perhaps even in the Catalog, if it is a fixed offering). Students must then assume responsibility to work with their adviser to ensure that they can complete their work in mathematics in appropriate time. Faculty with a teaching load of four courses per term should not also offer independent studies; such cramming into the hours of the day means that the faculty member does not have time to think about and pursue new avenues, propose new courses, discuss options with colleagues in other departments, or to be a professional in the variety of ways we know, respect, and reward. While at times, it may be necessary to offer a class with a small number of students, I expect that there are many other mathematics classes taught with 25 to 30 students enrolled so "it evens out."

While modifying the curriculum can help students to see career possibilities for a major in mathematics, another possibility is to host a "Career Night" in which students hear from mathematics majors who now work in a variety of positions such as with NASA, as a consultant, in inventory control, as a systems analyst, or as an actuary. These career night speakers, say two or three each year, will not only be good advisers, they will become advocates for Fairmont State and can be internship/summer job/career resources for students. Activities for students will only complement the already rich mathematical environment at FSC. Faculty and students participate in the Miami Conference, another highlight mentioned by students at lunch; students also expressed interest in other such opportunities. During my conversations with faculty, I heard similar ideas such as participation in other student-oriented conferences, a student organization in mathematics (MAA Student Chapter is one possibility but also simply a Mathematics Club or to involve computer science students, make it MaCS), opportunity and encouragement for mathematics Zumni to return (erhaps for one of the Career Nights), and student involvement with a professional organization. Indeed, not only does FSC have the mathematics expertise, they have a faculty with good ideas. This faculty needs to be proactive in getting these ideas to the surface and sharing with colleagues, not only in mathematics, but also in other disciplines, especially the sciences. Students should understand the strength of the statement from the FSC Mathematics

website: "There is no major which gives you more flexibility in what you can do after you graduate than mathematics." Fairmont State graduates in mathematics have the advantage of a required minor, so not only do they have the strong analytical and logical skills of a mathematician but they can also communicate with those in other areas.

The applied calculus sequence was mentioned during my visit with a question as to just who should take this alternative route. Indeed, I questioned chemistry students not taking the same calculus as mathematics and computer science majors. With current enrollment, is it desirable to have two calculus tracks? Communication with faculty in biology, chemistry, physics, computer science, as well as other areas that depend on mathematics should be ongoing. There are new recommendations from each of these fields; for example, the *Bio 2010* from the National Research Council states that very few biology majors are "exposed to discrete mathematics, linear algebra, probability, and modeling topics, which could greatly enhance their future research careers." Of course, it is essential that mathematics faculty know what mathematics other disciplines need and then assume the lead in discussions with regard to the appropriate curriculum and teaching for these requirements.

Fairmont State is fortunate to have sabbatical leaves and other faculty development opportunities in which mathematics faculty have participated. Financial support as well as reassigned time are excellent resources for curriculum modification; it is essential that faculty have the time and support to learn from what others have done, work with colleagues on campus, redesign courses, work with students during the transition. I urge the mathematics faculty to continue to take advantage of these resources and that indeed they reconsider their undergraduate curriculum in light of their goals set in 1998. Resources for curriculum ideas include national and regional meetings (such as those of the Mathematical Association of America), publications (for example, West Point's "seven into four" curriculum is now in book form), and internet searches, but probably the best is the time for open conversations with mathematics colleagues at Fairmont. These discussions will need to be complemented with a summary that is distributed and then follow-up discussions; I wonder how such can be accomplished without a coordinator or department chair who has reassigned time to pull all this together as well as special secretarial support.

Library holdings and access to materials are critical so must be considered as changes in curriculum are made. With electronic support and inter library loan systems, libraries can maintain a reasonable collection with a modest annual budget. However, students need easy access to the quality expository writing in mathematics that is available today; being on the library shelf enables the student to explore, perhaps finding ideas for undergraduate research projects. As the faculty plans its curriculum, it should consider the importance of students being able to read and digest mathematical material beyond a textbook and so should determine how to maintain a small collection that is up to date. The FSC Library has a Subscription to J-STOR; an online archive and good resource; the access to the internet provided in the Library means that students have access to the best of electronic, as well as to print, which is the ideal in today's environment.

The emphasis during my visit at Fairmont State was on the undergraduate major in mathematics; however, there is much overlap in those courses and the courses taken by students preparing to teach in grades five through twelve. Again, I see strength in mathematics teacher preparation, in the attention the programs receive from faculty in mathematics as well as from the administration, the facilities, and the Library. Many of us believe a better option for students preparing to teach secondary school is to complete a major in mathematics with a minor in

secondary education (or some other fusion of these two, in which the major is in mathematics). As these discussions take place, it is a good time to have a fresh look at the major in mathematics; we certainly want those who are teaching mathematics at all levels to understand the true breadth and applications of a discipline that also thrives on depth.

When one visits a good place such as Fairmont State, it is a great learning experience. I hope the ideas included herewith will enhance this good. I welcome the opportunity to further discussions by telephone or e-mail with faculty and/or deans.

Barbara T. Faires, Ph.D.

WEST VIRGINIA
HIGHER
EDUCATION
POLICY
COMMISSION

J. THOMAS JONES
CHAIR

J. MICHAEL MULLEN
CHANCELLOR

MAY 6 2004

May 5, 2004

President David Bradley
Fairmont State University
1201 Locust Avenue
Fairmont, WV 26554

Dear President Bradley:

Attached is a copy of the State Team Report from the March 27 – March 31, 2004 WV/NCATE Continuing Accreditation Visit to Fairmont State University. Would you please review this report and provide a rejoinder indicating your acceptance or disagreement with the team recommendations. This rejoinder is due in my office within thirty days of receipt of this report.

Please let me know if you have questions or need additional information.

Sincerely,

Dr. Bruce Flack
Director of Academic Affairs

cc: Dean Ravic Ringlaben

Higher Education Policy Commission
1018 Kanawha Boulevard, East, Suite 700 • Charleston, West Virginia 25301
(P) 304.558.0261 • (F) 304.558.1646
flack@hepc.wvnet.edu

TO: Dr. Ron Childress

FROM: Cynthia S. Kelley CSK

RE: WV State Team Report for Fairmont State

DATE: April 19, 2004

Please find attached the WV State Team review of specialty programs completed during the WV/NCATE Continuing Accreditation Visit March 27 through March 31, 2004 at Fairmont State College.

If you have any questions or concerns, please feel free to contact me.

SPECIALTY PROGRAM REVIEW REPORT

Joint WV/NCATE
Continuing Accreditation Visit
Fairmont State
March 27 – March 31, 2004

Submitted by:
West Virginia Team Members
Cynthia S. Kelley, State Team Chair
Earl Nicodemus

April 19, 2004

Institution:	**Fairmont State**
Program:	**Professional Education**
Date of Visit:	**March 27 – March 31, 2004**

Consistent with the Requirements/Procedures for Implementing the WV/NCATE Protocol a joint WV/NCATE Continuing Accreditation Visit was conducted at Fairmont State from March 27th through March 31st, 2004. The purpose of the state team's visit was to review and assess the specialty programs offered by Fairmont State.

The team was composed of three Board of Examiners members and two state team members. Observers included representatives from the Higher Education Policy Commission and the WV Department of Education.

The state team and Board of Examiners team members functioned in an integrated manner during the visit. Although the primary focus of the state team was to review and assess the specialty area programs, they also participated in the data collection relative to NCATE standards and wrote NCATE Standard 2 – Assessment. The Board of Examiners team also assisted in collecting data related to the state report.

1. Program Rationale/Philosophy/Goals

Every Curriculum Analysis Report included a well written program rationale, philosophy, and goals statement. Those statements varied widely among the programs. However, all were consistent with the unit's "Informed Decision Maker" conceptual framework.

2. Conceptual Framework

The teacher education unit at Fairmont State has adopted the Informed Decision Maker *"Impacting Tomorrow Through Education"* conceptual framework. This theme recognizes that a teacher prepared to meet the challenges and complexities of classroom teaching must be able to make informed, critical decisions about curriculum and instruction.

Four of the Curriculum Analysis Reports provided to the team identified a different conceptual framework. Art described the conceptual framework as the national guidelines. Family and Consumer Sciences listed the aims of the American Association of Family and Consumer Sciences as its conceptual framework. The faculty who teach French identified the conceptual framework as a "critical reasoning model." The School Library Media program identified the conceptual framework as "four important functions" as published by AASL and AECT in Information Power: Building Partnerships for Learning. However, Fairmont State completed a document similar to a Specialty Area Program Report for all four of these programs. Those documents indicate that these four programs are also based on the Informed Decision Maker conceptual framework. Therefore, all teacher education specialty area programs at Fairmont State are developed around the Informed Decision Maker conceptual framework and this criterion is met.

3. State and National Guidelines

Of the 15 specialty areas for which NCATE affiliated program reviews are available, ten have been approved. Five of the areas have not yet been approved, four of these being in rejoinder process and one rejoinder having not been submitted. Curriculum Analysis Reports are completed for all of the specialty areas, both approved and pending. This information is detailed in the following table.

NCATE Affiliated
Specialty Areas
March 2004

The following programs have national organizations which are directly affiliated with NCATE. Accordingly, they have all, with the exception of the Health specialty submitted official Specialty Program Reviews to NCATE as per protocol. The programs and results of this endeavor follow.

Specialization	Organization	Status
Biology	NSTA	Approved
Chemistry	NSTA	Approved
Computer Science	ISTE	Pending*
Elementary Education	ACEI	Approved
English	NCTE	Not Approved*
General Science	NSTA	Approved
Health	AAHPERD	Rejoinder Not Submitted**
Learning Disabilities	CEC	Approved
Mathematics (through Algebra I)	NCTM	Approved
Mentally Impaired	CEC	Approved
Multi Categorical S.E.	CEC	Approved
Physical Education	AAHPERS	Not Approved*
Physics	NSTA	Approved
Social Studies	NCSS	Not Approved*
Technology	ITEA/CTTE	Approved

*In rejoinder process
** Rejoinder complete – not submitted

Eleven specialty areas do not have NCATE affiliated associations. All of these programs have Curriculum Analysis Reports. The following table lists these specialty areas.

Non NCATE Affiliated
Specialty Areas
March 2004

The following programs have national professional organizations which are not currently affiliated with NCATE. Accordingly, they are not required to submit an official Specialty Program Review to NCATE. However, they all adhere to the national guidelines published by their respective organizations.

Specialization	Organization	Grade Levels
Art	NAEA	PreK-Adult & 5-Adult
Business Education	NBEA	5-Adult
Family & Consumer Science	NASAFACS	5-Adult
French	ACTFL	5-Adult
Journalism	JEA & SLD/AESMC	5-Adult
Music	NASM	PreK-Adult
Oral Communications	NCA	5-Adult
School Library Media	ALA/AASL	PreK-Adult
School Nurse	SNP/NASN	PreK-Adult
Spanish	ACTFL	PreK-Adult

4. Faculty

Qualifications of faculty members in subject matter areas are offered in the Curriculum Analysis Reports. Faculty members are qualified to offer courses and instruction in their specific areas. Review of faculty vitae and interviews with specialty area faculty members provided evidence to support faculty qualifications. Interviews also supported the commitment of specialty area faculty to support the conceptual framework and mission of the teacher preparation program.

5. Student Performance

Student performance on state and national exams related to specialty programs is acceptable. Three programs described in the CARs do not have exams associated with their subject. Those are Journalism, Computer Science, and School Nurse. The CAR for the Journalism programs does not address the issue of student performance. The Computer Science CAR states that there are no graduates of this new program, so performance data for students is not yet available. The School Nurse program uses the Registered Nursing licensure exam to track student performance, but no data were offered as a part of the CAR.

The following table reflects the average pass rate for each of the specialty areas for the past three years:

2000-2003
Test Taker Data
Subject Area Exams
** Does Not Include Test Retakers*

Subject	2000-2001		2001-2002		2002-2003		Averages	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Art	5	100	2	100	4	75	11	91
Biology (231)	2	100	2	100	2	100	6	100
Biology (235)	1	0	4	75	3	33	7	37
B.D.	0	0	0	0	3	100	3	100
Business	3	100	6	100	3	100	12	100
Chemistry	2	100	1	100	2	100	5	100
Elementary	101	82	106	86	81	81	288	83
English	4	100	5	100	6	100	15	100
French	1	100	0	0	0	0	1	100
Gen. Math (5-9)	9	100	8	88	8	80	25	89
Gen. Science	1	100	7	71	3	100	11	90
Health	15	50	10	80	12	33	38	55
Fam/Con.Science	4	100	5	100	1	100	10	100
Library Media	4	100	6	83	5	80	15	88
Math (5-12)	1	0	4	100	3	100	8	66
M.I.	7	100	3	100	0	0	10	100
Music	4	75	5	100	5	60	14	80
P.E.	16	63	10	60	6	67	32	63
Physics	1	100	0	0	0	0	1	100
Phys. Science	0	0	5	100	2	100	7	100
Soc. Studies	12	92	29	80	18	78	58	83
Spanish	0	0	1	100	1	100	2	100
Sp.Ed.Knowledge	12	100	10	90	6	100	28	90
SLD	11	91	11	91	1	100	23	94
Speech	3	67	0	0	2	100	5	83
Technology	4	100	6	100	7	100	17	100

6. Overall Summary

Fairmont State lists fifteen programs for which a NCATE sanctioned specialty organization program review is available. Ten of the fifteen programs have been recognized by the appropriate specialty organizations. Of the five remaining programs, one is listed as "pending" and three others have filed rejoinders. The Health Education program was not, at the time of the visit, submitted for rejoinder. Curriculum Analysis Reports were submitted for all five of these programs. Eleven programs were presented for which no NCATE sanctioned program review is available. Curriculum Analysis Reports were provided for all of these programs. Fairmont State conducted an in-house review for each of the programs using the SPA review model. Although this is not required in the West Virginia NCATE Protocol, it provided an excellent evaluation of those programs.

The team makes the following recommendations regarding the specialty programs at Fairmont State:

1. The Health Education program has not been approved by the associated SPA and no rejoinder has been submitted. Student performance on the subject area Praxis exam for this program is 55% with 10 or more taking the exam each semester. The Health Education program should be reviewed and modifications made.

2. Student performance data should be collected for the Journalism program. Even though presently no state or national exam exists for this area, a method of collecting and aggregating data relating to student performance should be developed.

3. While the Registered Nurse examination is used to measure student performance for the School Nurse program, data should be collected and made available.

4. All programs which have been reviewed and approved or have approval pending through the NCATE program review process be considered state approved. (Biology, Chemistry, Computer Science, Elementary Education, English, General Science, Learning Disabilities, Mathematics, Mentally Impaired, Multi-Categorical Special Education, Physical Education, Physics, Social Studies, Technology)

5. All programs for which no NCATE approved specialty organization exists be considered state approved. (Art, Business Education, Family and Consumer Sciences, French, Journalism, Music, Oral Communication, School Library Media, School Nurse, Spanish)

6. All programs for which Curriculum Analysis Reports and Fairmont State institutional program review have been completed, but rejoinder not submitted, be considered state approved. (Health)

Submitted: April 19, 2004

State Team Members: Earl Nicodemus
Cynthia S. Kelley, Team Chair

Cynthia S. Kelley
Team Chair

April 19, 2004
Date

APPENDIX XIV

FSU Math Advisory Board Minutes

The Math Advisory Board met on Monday, November 3, 2008, from 6 pm to 8:40 pm.

Attendees were:
Dr. John Atkins, Professor, Lane Department of Computer Science and Electrical Engineering, WVU
Richard Brockway, Senior Principal Engineer, Noblis, Inc.
Lucas Dunlevy, Dominion
Dr. Harry M. Murray III, Optometrist, Murray, Murray, and Groves
Neil Reger, Math Faculty, Buckhannon Upshur High School
Karen Yoho, Math Faculty, Marion County Technical Center
Stephanie Yoho, Math Faculty, Fairmont Senior High School
Dr. Cun-Quan "CQ" Zhang, Professor, Mathematics Department of Eberly College of A & S, WVU

Dr. Tony Gilberti, Dean of the FSU School of Science and Technology, and members of the FSU mathematics faculty, Mr. Randy Baker, Mr. James Dunlevy, Dr. Susan Goodwin, Dr. Jeanne Harris, Mrs. Dennine LaRue and Dr. Joe Riesen.

After dinner the meeting began with opening remarks from Dr. Tony Gilberti, Dean of the School of Science and Technology.

The charge of the Advisory Board was to lend their expertise and support toward improving the BS in Mathematics program. The goal is to have one, or possibly two, face to face meetings per year. Discussion and voting between meetings would be done electronically.

Dr. Susan Goodwin facilitated the rest of meeting, guided by a PowerPoint presentation about the BS program.

There were several comments and suggestions about the Mission statement:

Content is okay but the statement is too long.
Maybe bold the first sentence and then bullet information below, since the mission is followed by enabling statements
Liked active goals such as "equip" and "analytic problem solving."
Critical thinking is essential to success in the real world.
Would like to see use of technology and use of collaboration skills - teamwork.
Train students in critical thinking to promote creativity.
End mission statement after the second sentence.

Next a quick look at program goals led to the following ideas:

Add the maximum possible values to the performance standards (e.g. 13 out of 24).
Maybe use Discrete Math to check a goal.
Make a matrix showing which program objectives meet which program goals.

Suggestions:

The program needs a second room dedicated to mathematics to make it easier to use the technology and other support materials. If people have to carry with them bags or boxes of these items for class and then return them to the math closet in room 310 ET, they just won't (or can't) use the materials.

Dr. C. Q. Zhang said the program needs more staff for the amount of services courses and majors courses we teach.

Libraries of Fairmont State University and Pierpont Community & Technical College

Review of Resources in Mathematics

January, 2009

The collections of the Libraries of Fairmont State University and Pierpont Community & Technical College contain over 300,000 books (both print and electronic), bound journals, CDs, DVDs, videocassettes, and government documents. Through the library's website, at http://library.fairmontstate.edu, students, faculty, and staff may access the online catalog of holdings (http://marlo.fairmonstate.edu) and over 170 electronic databases (both full text and bibliographic), including more than 40,000 full text journals. Through the use of the UCA (Unified College Account), access to all online databases, electronic books, etc., are available, regardless of the location of the user, from any place in the world with Internet access. The library is a member of a local consortium, MARLO, which includes public, school, and academic libraries, and materials and resources are shared among the member libraries.

The three libraries have over 150 computers available from which students may access a wealth of information in all fields, including mathematics. Most of the software used at the institutions is available on these computers. A Macintosh lab was recently added to the Musick Library and has nine computers.

The main campus library, the Ruth Ann Musick Library, is available over 100 hours per week, and the ground floor lab is open 139 hours per week. The lab is open twenty four hours a day, from Sunday at 2 p.m., until Friday at midnight. The Musick Library schedule is as follows during fall and spring semesters:

Sunday—2 p.m.—midnight

Monday—Friday—7 a.m.—midnight

Saturday—9 a.m.—6 p.m.

Professional librarians staff the reference desk over 90 hours a week. Students and faculty may contact the reference librarians for assistance, and the librarians provide library instruction, tailored to meet the needs of classes and designed to help students and faculty learn how to find and use all of the resources available. The library also provides access through chat, using MEEBO. The email account, askalibrarian@fairmontstate.edu , is available to students, faculty, and staff for help and assistance with technical and research questions.

Interlibrary Loan services are available, without charge, to all students and faculty, for materials that are not available in the libraries. The library absorbs the costs of such services, making materials not owned by the library available within a few days of the request. The library uses ILLIAD, making it simple for users to request materials via the web and allowing documents such as journal articles to be posted to a secure website for the requestor's use.

Electronic Reserves provides a system for faculty to post documents, readings, syllabi, etc., for online classes. The Docutek system allows the quick conversion of any document into PDF by faxing the document into the server. The document is placed online by librarians or by faculty members, if preferred, and the URL may be posted in Blackboard to allow access to it. Some faculty, who do not use Blackboard, post many course materials on the electronic reserve system. The Electronic Reserves system provides access to course pages containing documents placed on reserve by faculty. The course pages have passwords, are secure, and are in compliance with copyright guidelines.

Faculty members wishing to place materials on reserve for student use may provide a list of the materials, may email a list, or may gather materials and provide them to the Circulation Services staff members to have items placed on Library Reserves . Materials may be placed on two hour in Library use, overnight, and three-day or seven-day reserve.

There are photocopiers, digital senders, microfilm/microfiche readers/printers, and other specialized equipment and services available. The library will fax documents for students for a small fee.

Six librarians are available to provide instructional programs and training sessions, including orientation to the libraries, so that faculty and students learn how to find and use all of the libraries' resources, understand methods of dealing critically with available information, and are exposed to the variety of ways in which information may be accessed, including both the traditional means and through newer electronic media. Two electronic classrooms in the Musick Library are available for librarians to provide instruction and for professors to use with classes. Librarians are also available to go to classrooms and to other parts of the campus, including the residence halls to provide instruction in the use of library resources. Librarians are available to work with faculty and students at off-campus sites and to provide instruction and other reference services.

An analysis of the library collections show over 2900 items directly related to mathematics. This includes both books and journals (both print and electronic formats). Attached are documents that show the titles and bibliographic information relating directly to the mathematics materials held. The Mathematics Department shares in an overall budget for the School of Science and Technology of $9,400. This funding is for specific requests from that school and does not reflect expenditures for electronic and/or print journals and databases, which the library purchases.

APPENDIX XVI

Fairmont State University
Bachelor of Science in Mathematics
Productivity Review

The mathematics faculty requests that the Bachelor of Science in Mathematics program be exempt from further review, and not recommended for probation, because of the following:

1. Evidence that the number of degrees granted was under-reported.
2. The critical need for graduates in Science, Technology, Engineering and Mathematics (STEM) areas.
3. The negative impact elimination of the BS in Mathematics would have on other programs.
4. Continuing efforts to recruit and retain students in all mathematics programs.

1. Evidence that the number of degrees granted was under-reported.

In the Productivity Review: 2003-2008 for Fairmont State University, the Mean Degrees reported for the BS in Mathematics was 3.2. That would represent 3.2 times 5, or 16, degrees granted during the time frame in question. However, working with the Registrar, the mathematics faculty have verified twenty-three graduates for a mean of 4.6. Attached is a table showing the twenty-three graduates and the math and related courses each took.

In addition to those twenty-three students, two more students completed all requirements for the BS in Mathematics but did not pay the additional fifteen dollars to apply for the second degree. One graduated with a BS in Computer Science and the other with a BA in Education with 5-adult specialization in mathematics. With those two students, the Mean Degrees would have been 5, which would have met the standard. Two more students earned the BA in Education with 5-adult specialization in mathematics, taking all but two of the mathematics courses required for the BS in mathematics. Ten students graduated with a minor in mathematics and, of those ten, three were two mathematics courses short of completing the BS in Mathematics.

During the last five years, twenty-three students who earned a Bachelor of Arts in Education degree completed a 5-9 specialization in mathematics.

Attached are spreadsheets illustrating the degrees awarded and the mathematics courses completed by students.

2. The critical need for graduates in STEM areas.

The United States has a dire shortage of mathematicians and other professionals in STEM areas. The prospects for easing the shortage are dim; as more students enter non-STEM areas either because of preference or because of inadequate preparation for a STEM program. In recognition of the problem, the federal government has placed greater emphasis in those areas

through increased funding and promotion.

As a national average, only one percent of all bachelor degrees awarded are in mathematics. The Fairmont State University average is about one percent. There is also a critical need for teachers in the STEM areas at the secondary level and, as middle school mathematics teachers are moved into lower level secondary positions to ease the pressure, the need is pushed into the middle school mathematics programs.

Fairmont State's mathematics education programs have produced many of the mathematics teachers working in the state now. In Marion County alone, fifty-nine percent of secondary mathematics teachers and sixty-eight percent of middle school mathematics teachers graduated from the Fairmont State Mathematics Program. In addition, two of our graduates have been WVCTM Elementary School Mathematics Teachers of the Year, four have been WVCTM Middle School Mathematics Teachers of the Year, three have been WVCTM Senior High Mathematics Teachers of the Year, one has been WVCTM College Mathematics Teacher of the Year, two have won WVCTM Mathematics Teacher-in-Training Grants, and two have been selected for WVCTM Distinguished Service Awards.

3. The negative impact elimination of the BS in Mathematics would have on other programs.

Recently the state of West Virginia mandated that all students earning a degree in Education must complete the equivalent of a bachelor's degree in their chosen field. At Fairmont State, this means that all students earning a BA Ed degree with 5-adult specialization in mathematics must complete a BS in Mathematics. For the five year period for this review, two students earned the BA Ed in Mathematics, but not the BS in Mathematics. This was because they did not take two additional mathematics courses. Another completed both the BS and the BA Ed but applied for only the BA Ed. Had those three students been included in the current five-year review, the Mean Degrees number for Mathematics would have been 5.2 (26/5), and no Productivity Review would have been required. Since Mathematics Education students must now complete a BS in Mathematics, elimination of the BS degree program would eliminate the Mathematics Education program as well.

Of the ten students who received mathematics minors, nine were Computer Science majors, and the tenth majored in an Engineering Technology program. Elimination of the mathematics major would certainly impact the number and frequency of mathematics courses offered at or above the Calculus level. That would make a mathematics minor less attractive as it would be more difficult to complete in four years. Currently, the Computer Science program is increasing mathematics requirements for the CS degree to include two terms of Calculus (Math 1190 and Math 3315), one of Discrete Mathematics (Math 2216), one of Mathematical Logic (Math 2200) and one of Probability and Statistics (Math 3335). Having completed those courses, a student would have earned 17 of the 36 mathematics credits needed for a mathematics major and 17 of the 24 required for a mathematics minor. At least five of the twenty-three students who received the BS in Mathematics also completed the requirements for a BS in Computer Science.

4. Continuing efforts to recruit and retain students in all mathematics programs.

As illustrated above, from now on all students earning a BA Ed. with 5-adult Mathematics specialization will complete a BS in Mathematics, and the mathematics faculty will strongly encourage those students to apply for both degrees upon graduation. Also, because of the increase in the mathematics courses required for the BS in Computer Science, both mathematics faculty and computer science faculty will increase efforts to encourage CS students to double major or at least minor in mathematics. More extensive background in mathematics will enhance their employment options. In the lower level mathematics courses, particularly those designed for the Elementary Education program, faculty will continue to recruit students to the Mathematics Education programs.

In Fall, 2009, a learning community will begin operation. The community will be open to all students in the College of Science and Technology, which includes mathematics. Plans include a separate floor in one of the dormitories for learning community students and extra tutoring and mentoring available for the students.

Last Fall the College of Science and Technology hosted a Technology Challenge for students from five high schools. Students interested in mathematics played Math Trivial Pursuit run by current Fairmont State math majors. Of the three students who asked the dean for admission information during the challenge, two asked for details on becoming mathematics majors. The Challenge will be an annual event for recruitment.

To retain students, the mathematics faculty work hard to create a supportive environment, encouraging students to frequent faculty offices, form study groups with peers, and spend time in the study room mentoring younger students. Free tutoring by upper level mathematics students is available for at least twenty hours per week in the study room. Twice each year, mathematics faculty arrange student trips to conferences to broaden their exposure to mathematics and to build camaraderie among students.

5. Summary

Because the statistics for the BS in Mathematics were under-reported, because of the critical need for mathematicians and mathematics teachers, because of the negative impact the elimination of the BS in Mathematics would have on other degree programs and because of the ongoing efforts to recruit and retain students, the mathematics faculty requests an exemption from further review for possible probationary status.

Students Meeting Math Requirements for BS in Mathematics

Summer 2003 through Fall 2008

	Name	Student F number	Semester of Graduation	Required Courses									One Science Course					Electives: Group A – Choose One		Electives: Group B - Choose Two						Miscellaneous Math Courses								Degree		
				MATH 1190	MATH 2200	MATH 2212	MATH 3315	MATH 3316	MATH 3335	MATH 3361	MATH 3362	COMP 1102	CHEM 1101	CHEM 1105	PHYS 1101	BIOL	PHYS 1105	MATH 3375	MATH 3391	MATH 2206	MATH 2218	MATH 3342	MATH 3372	CS 1108	MATH 4401	MATH 1107	MATH 1112	MATH 1113	MATH 1115	MATH 1170	MATH 1199	MATH 4431	MATH 4400	BS	BA in Ed.	BS in CS
1	Removed for Privacy	F00086503	Spring 2008	x	x	x	x	x	x	x	x	x					x		x	x		x											x		
2	Removed for Privacy	F00019022	Spring 2004	x	x	x	x	x	x	x	x	x						x	x		x							x						x		
3	Removed for Privacy	F00018527	Spring 2005	x	x	x	x	x	x	x	x	x			x			x			x								x					x		
4	Removed for Privacy	F00076180	Fall 2008	x	x	x	x	x	x	x	x	x	x					x			x				x								x			
5	Removed for Privacy	F00079044	Spring 2008	x	x	x	x	x	x	x	x	x	x						x		x		x				x	x				x		x	x	
6	Removed for Privacy	F00038522	Spring 2004	x	x	x	x	x	x	x	x	x							x		x			x			x		x	x				x		
7	Removed for Privacy	F00022509	Fall 2004	x	x	x	x	x	x	x	x	x				x			x		x			x			x							x		
8	Removed for Privacy	F00018623	Spring 2004	x	x	x	x	x	x	x	x	x	x		x				x		x		x				x				x			x		
9	Removed for Privacy	F00021640	Spring 2007	x	x	x	x	x	x	x	x	x						x	x		x		x			x			x	x				x		
10	Removed for Privacy	F00053223	Fall 2006	x	x	x	x	x	x	x	x	x			x			x	x	x	x				x		x					x		x		
11	Removed for Privacy	F00047342	Sum 2008	x	x	x	x	x	x	x	x	x				x		x		x		x		x		x	x	x	x	x				x		
12	Removed for Privacy	F00033641	Spring 2005	x	x	x	x	x	x	x	x	x	x						x		x		x									x	x	x		
13	Removed for Privacy	F00015453	Spring 2004	x	x	x	x	x	x	x	x	x	x		x			x			x	x	x											x		
14	Removed for Privacy	F00019183	Spring 2007	x	x	x	x	x	x	x	x	x		x	x			x			x			x		x			x	x				x		
15	Removed for Privacy	F00018954	Spring 2005	x	x	x	x	x	x	x	x	x			x			x			x		x				x							x		
16	Removed for Privacy	F00085717	Spring 2007	x	x	x	x	x	x	x	x	x		x			x	x			x		x	x							x			x	x	
17	Removed for Privacy	F00046503	Spring 2007	x	x	x	x	x	x	x	x	x	x		x			x			x		x	x					x					x		
18	Removed for Privacy	F00019899	Spring 2004	x	x	x	x	x	x	x	x	x				x		x			x		x	x										x		
19	Removed for Privacy	F00071270	Fall 2004	x	x	x	x	x	x	x	x	x						x			x		x			x	x		x	x		x		?	x	
20	Removed for Privacy	F00019564	Spring 2004	x	x	x	x	x	x	x	x	x						x			x						x							x		
21	Removed for Privacy	F00000750	Sum 2007	x	x	x	x	x	x	x	x	x	x		x			x			x		x								x			x	x	
22	Removed for Privacy	F00038886	Fall 2006	x	x	x	x	x	x	x	x	x	x						x		x			x											x		
23	Removed for Privacy	F000	Sum 2003	x	x	x	x	x	x	x	x	x	x						x		x			x					x	x					x		
The following completed all math requirements for the BS but did not apply for the BS in Math degree																																					
24	Removed for Privacy	F00025961	Spring 2005	x	x	x	x	x	x	x	x	x	x					x			x	x			x		x			x							x
25	Removed for Privacy	F00089249	Fall 2006	x	x	x	x	x	x	x	x	x				x			x		x			x					x	x		x			x		
The following completed all but two of the math requirements for the BS in Math but graduated with a BA in Ed with 5-adult mathematics specialization																																					
26	Removed for Privacy	F00021284	Spring 2004	x		x	x	x	x	x	x	x										x				x		x			x				x	
27	Removed for Privacy	F00015525	Fall 2008	x		x	x	x	x	x	x	x								x	x		x				x					x			x	

Students Meeting Math Requirements for Minor in Mathematics

Spring 2004 through Fall 2008

	Name	Student F number	Semester of Graduation	Required Courses									One Science Course					Electives: Group A – Choose One		Electives: Group B - Choose Two						Miscellaneous Math Courses							Major	
				MATH 1190	MATH 2200	MATH 2212	MATH 3315	MATH 3316	MATH 3335	MATH 3361	MATH 3362	COMP 1102	CHEM 1101	CHEM 1105	PHYS 1101	PHYS 1105	BIOL	MATH 3375	MATH 3391	MATH 2206	MATH 2216	MATH 3342	MATH 3372	CS 1108	MATH 4401	MATH 1107	MATH 1112	MATH 1113	MATH 1115	MATH 1170	MATH 1189	MATH 4400	BS in CS	BSET
1	Removed for Privacy	F00093707	Spring 2008	x	x		x	x	x		x	x									x			x									
2	Removed for Privacy	F00049621	Spring 2004	x	x		x	x	x		x	x									x			x			x			x			
3	Removed for Privacy	F00040026	Spring 2006	x	x		x	x			x										x				x		x			x			
4	Removed for Privacy	F00099859	Spring 2006	x	x		x	x	x		x		x		x		x								x								x
5	Removed for Privacy	F00086696	Spring 2004	x	x		x	x	x		x	x									x			x									
6	Removed for Privacy	F00024125	Spring 2008	x	x		x	x	x		x	x									x			x					x			x	
7	Removed for Privacy	F00086304	Spring 2004	x	x		x	x	x		x	x					x				x			x		x			x			x	
	The following completed all but one of the mathematics courses required for the BS in Mathematics																																
8	Removed for Privacy			x	x	x	x	x	x	x		x						x			x			x					x				
9	Removed for Privacy	F00018984	Spring 2004														x													x			x	
	The following completed all but two of the mathematics courses required for the BS in Mathematics																																
10	Removed for Privacy	F00060896	Spring 2005	x	x	x	x	x	x		x	x					x				x			x	x								x	

Students Meeting Math Requirements for 5-9 Specialization in Mathematics

Spring 2004 through Fall 2008

	Name	Student F number	Semester of Graduation	Required Courses Old						Required Courses New					Miscellaneous			Miscellaneous Math courses			Degree
				Math 1110	Math 2210	Math 3323	Math 1170	Math 2212	Math 4431	MATH 4431	Math 1113	Math 1115	Math 2216	Math 1185	COMP 1102	MATH 1101	MATH 1102	MATH 1107	MATH 1112	Math 1190	BA in Ed.
1	Removed for Privacy	F00080885	Spring 2004	x	x	x	x	x	x	x					x				x	x	x
2	Removed for Privacy	F00080875	Spring 2005	x	x	x	x	x	x	x									x		x
3	Removed for Privacy	F00039637	Fall 2005	x	x	x	x	x	x	x									x		x
4	Removed for Privacy	F00046979	Spring 2006	x	x	x			x	x	x		x	x							x
5	Removed for Privacy	F00024358	Spring 2005	x	x	x		x	x	x										x	x
6	Removed for Privacy	F00032172	Spring 2006	x	x	x	x	x	x	x											x
7	Removed for Privacy	F00038110	Spring 2004	x	x	x	x	x	x	x											x
8	Removed for Privacy	F00014821	Spring 2005	x	x	x	x	x	x	x		x						x			x
9	Removed for Privacy	F00061686	Spring 2004	x	x	x	x	x	x	x											x
10	Removed for Privacy	F00027266	Spring 2005	x	x	x	x	x	x	x										x	x
11	Removed for Privacy	F00047700	Spring 2005	x	x	x	x	x	x	x		x							x		x
12	Removed for Privacy	F00020555	Spring 2006	x	x	x	x	x	x	x											
13	Removed for Privacy	F00087668	Spring 2006	x	x	x	x		x	x		x	x	x					x		x
14	Removed for Privacy	F00034814	Spring 2005	x	x	x	x	x	x	x											x
15	Removed for Privacy	F00047059	Fall 2006	x	x	x	x	x	x	x		x							x		x
16	Removed for Privacy	F00054782	Spring 2008	x	x	x		x	x	x	x	x	x		x			x		x	x
17	Removed for Privacy	F00110450	Spring 2008	x	x	x			x	x	x	x	x	x				x	x		x
18	Removed for Privacy	F00026592	Spring 2007	x	x	x			x	x	x	x	x	x					x		x
19	Removed for Privacy	F00043060	Spring 2007	x	x	x	x	x	x	x								x	x		x
20	Removed for Privacy	F00041116	Sum 2005	x	x	x	x	x	x	x		x	x						x	x	x
21	Removed for Privacy	F00062937	Fall 2005	x	x	x			x	x	x		x	x							x
22	Removed for Privacy	F00021738	Fall 2006	x	x	x	x	x	x	x					x						x
23	Removed for Privacy	F00022350	Fall 2008	x	x	x			x	x	x	x	x	x					x		x

David R. Tyson
Chair

Brian Noland
Chancellor

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MEMORANDUM

TO: Maria Rose
Vice President for Academic Affairs

FROM: Bruce Flack
Director of Academic Affairs

DATE: April 10, 2009

RE: **Low Productivity Degree Program Audit**

After a review of the Fairmont State University request for exemption of certain degree programs from the Higher Education Policy Commission low-productivity audit called for in Series 10, *Policy Regarding Program Review,* we have approved exemption for the following:

- BS Mathematics

The staff did not approve the request for exemption of the following:

- BA French
- BA Spanish

When exemptions were granted, they were typically for matters of (1) serving a critical regional or statewide need, (2) flexible program option for students with no additional cost, (3) program is tied to a companion program in another department, and (4) program is offered in cooperation with another educational entity.

The above programs that were not exempted will be recommended to the Commission for assignment of a four-year probationary status. During this period, the institution will have the opportunity to increase enrollment and enhance program viability.

Your intent to terminate the BA in Multidisciplinary Studies was noted. When this action is completed, please provide us with official notification so that the inventory can be revised.

If you have any questions about the process or the productivity audit, please contact me.