ABSTRACT
               The first part of this document is a collection of
papers on projects sponsored by junior colleges (tutoring elementary
school children, a high school mathematics competition, and a teacher
in-service course on computers), a discussion of granting credit by
exam, and information about committees for junior colleges. Part II
contains descriptions of the mathematics curriculum of 10 junior and
community colleges in Maryland. Course title, content, enrollment,
transferability, text and non-textual materials, and innovative
teaching methods are included for each school. Part III presents the
Constitution of the Mathematics Division of the Maryland Association
of Junior Colleges and related information. (DT)

ANNUAL NEWSLETTER

1971 — 1972

MATHEMATICS DIVISION

MARYLAND ASSOCIATION

OF JUNIOR COLLEGES

TABLE OF CONTENTS

Page Number	Title

INTRODUCTION

This newsletter has been compiled and distributed in the hope that some of it will be of some value to some of those who receive it. It is not definitive of anything I know of.

As editor, I am in the unenviable position of patsy: I can take none of the credit but must take all the blame for inconsistencies and inaccuracies.

If there is significant omission or distortion, pleast let me know in order that I may follow up with a correction. Those several colleges which submitted nothing are welcome to do so by May 10, 1972, at which time I will mail a supplement and errata.

In most cases, the material herein has been printed as submitted. No special format was requested and none has been followed. The possible advantages of greater uniformity would be hard to achieve under the circumstances.

I doubt that this project will need to be or can be duplicated in toto next year. But I hope enough momentum will be generated so that we can again have statewide communication on at least some aspects of our professional life.

David Russell, President
The Mathematics Division of
The Maryland Association of
Junior Colleges

Prince George's Community College
Largo, Maryland 20870
April 12, 1972

1

ACKNOWLEDGEMENT AND THANKS:

To those who contributed their time and effort;

To The Maryland Association of Junior Colleges for its funding;

To the administration of Prince George's Community College for
use of facilities needed to carry out much of this project;

To Vi Sadler and the other secretaries at PGCC who responded to
calls for help with even more than their customary good will and
hard work;

To the people reading this passage for their patience and interest.

David Russell, Editor

PART I: PAPERS

THE CALL

The following, on the letterhead of Prince George's Community College, was sent to each person on the mailing list of The Mathematics Division of The Maryland Association of Junior Colleges.

February 25, 1972

Dear Colleague:

The Mathematics Division of the Maryland Association of Junior Colleges has been allocated two hundred and fifty dollars to defray the costs of printing and mailing an annual newsletter. Each person receiving the present letter will in April be mailed a copy. But in the meantime it must be written.

I am at this time soliciting contributions of any type. Department chairmen are receiving a special request (copy enclosed) to compile the nitty-gritty facts. (They always get the dirty work.) But anyone interested in junior college mathematics is urged to send relevent contributions. We must have a section for jokes.

$$\int \frac{d(\text{cabin})}{\text{cabin}} = ?$$

Let us have good illustrative examples, fresh ideas on curriculum (tell us why CUPM doesn't work at your college), accounts of innovative teaching, or - anything pertinent.

Send manuscripts to me at the above address by March 17. Handwritten copy is fine. I will do only the necessary editing. I urge each interested person to contribute; we have long enough lacked communication.

Sincerely yours,

David Russell, President
MAJC - MATH

DR/vs

Enclosure

3

TH⅔ CASE FOR CREDIT BY EXAM

b/ P.R. Schott, Instructor
Math-Engineering Division
Catonsville Community College

For some time the Mathematics-Engineering Division at Catonsville Community College has been considering the pros and cons of offering credit by examination. We have found the resolution of the problem very difficult; for the question becomes not just, "Will the transfer institution grant credit? but more basically, "Would we be right in granting credit?"

I answer the latter question in the affirmative. The granting of credit is no more or less than an acknowledgment that a given student has passed a given course. In the normal progression of things, this means he has (1) registered for the course, (2) attended the classes (perhaps), and (3) satisfied the requirements of the course as set down by the instructor. And for mathematics course these requirements are, in all probability, the passing of "three tests and a final". Is there really a difference between getting a passing grade on one large test or four smaller ones? Granting credit by exam just means we allow the student to waive registration and formal class attendance.

Granted, there will be objections. For instance, "Aren't you over-looking the fact that class attendance and frequent exposure to the material are as important as testing in the conventional method of earning credit?" Of course class attendance is important in learning and in mastery of mathematical skills. But skills already mastered, as demonstrated on a comprehensive test, are not equivalent to skills being acquired. "Well then, don't different instructors demand different things of their students? How would these requirements be reflected on an examination?" True, requirements will differ from instructor to instructor and from course to course, but in Mathematics especially, and at the undergraduate level specifically, it is the rare instructor indeed who does not require his students to demonstrate their mastery of skills on one or more tests or exams. Thus there is really but one type of requirement: the examination.

If the practice of granting credit by exam is to work, though, we must insure that transfer institutions are convinced of its merits. Naturally we do our transfer students a disservice by granting them credits which they will only lose later. What we need is a cooperative arrangement between the two-year and four-year institutions, with standardized exams utilized and minimum acceptable scores agreed upon. Let's hope that this type of arrangement can become a reality in the near future.

I would welcome any comments, pro or con, which you have on this subject. Please send them to:

Mrs. P. R. Schott
c/o Math-Engineering Division
Catonsville Community College
800 S. Rolling Road
Baltimore, Mryland 21228

A MINI COURSE

Essex Community College is offering a one-credit mini course in which each student enrolled assumes the responsibility for tutoring one elementary school child who needs help in mathematics.

Mr. Jerome Bloomberg, assistant professor of mathematics, Mrs. Janet Kenny, instructor of education, and Mr. William Steger, assistant professor of mathematics, are sponsoring the course, "Field Studies in Elementary Mathematics Education." Several community elementary schools are working in conjunction with the community college in offering the course.

College students enrolled in the course must have completed an introductory college course in mathematics for elementary education and have had some related experience with children.

During the semester, each student meets regularly in seminar with other tutors and faculty members from the mathematics and education departments of Essex Community College. At the end of the course, the tutor, the teacher of the child, and the parents of the child are requested to submit evaluations of the tutoring experience. These evaluations are reviewed by the college faculty members sponsoring the course.

Jerome Bloomberg
Assistant Professor of Math

HIGH SCHOOL MATHEMATICS COMPETITION
ANNE ARUNDEL COMMUNITY COLLEGE

History and Motivation

The Mathematics Department of Anne Arundel Community College has been concerned about the mathematical ability of the students who enter the college. A concept developed and used by Missouri Southern College, Joplin, Missouri to aid communication between high schools and the college was that of a Mathematics Competition. Their program introduced high school students to the college, and encouraged excellence in the application, use, and teaching of mathematics. The Montgomery County Public Schools also has a competition, but conducted by the Public School System itself.

The competition organized at Anne Arundel Community College was designed to accomplish several purposes, mainly those of Missouri Southern College. First, it was to help e sta blish and maintain a line of communication between the college Mathematics Department and the high school mathematics faculty and students. Secondly, it was. to introduce the high school students to the college and to present to them some of the programs, courses, and facilities available to them if they wish to attend the college. Finally, it was to stimulate students and faculty alike to excel in mathematical pursuits.

A competition w's scheduled in the Spring of 1970 along the format used by Montgomery County. Each high school in the county, hoth public and private, was invited to attend. A series of two to three minute problems were given to the five member teams. Each member of the team submitted an answer at the end of the time period; these were checked and a team score was posted for that round. Then another question was asked. Team members could be substituted between questions. The competition ran for approximately an hour and a half. Winners were then announced and trophies awarded.

Considerable effort went into the preparation of this competition and the Mathematics Department decided to continue this type of competition on an annual basis.

However, in the Fall of 1970 several high schools requested that the competition be held more often and on a regular basis. The format of the competition was changed to one similar to that of Missouri Southern College so that it could be administered as simply as possible. Several monthly competitions were held during the 1970-71 academic year.

Description of Present Math Competition

Mathematics competitions are held for twelve interested high schools at Anne Arundel Community College on six Saturdays during the school year. Announcement of each competition is made to the schools via mailed notices. The notices specify the times and rooms for the competition and describe any special laboratory demonstrations that will take place.

Generally, the students and advisors arrive and register between 9 and 9:30 a.m. and the individual competition takes place from 9:30 to 10 a.m. At registration, seats are assigned for the individual competition so that no students from the same school sit next to one another, otherwise inadvertent

6

collusion might be possible.

After the students are in their seats, the problem sheets are distributed with answer sheets attached. Usually there are six problems. (see attached problem sheet). At 10 a.m. the answer sheets are collected and scored. An effort is made to keep answers simple so that the scoring is quick and easy to do. Only answers are scored. No work is considered and no partial credit is given. A score for each school from the individual competition is computed by averaging the top three individual scores from the school.

Solutions are preprinted and distributed as soon as the individual competition is completed. There is then a fifteen minute intermission. During this time students, advisors and the host faculty often take part in a lively discussion of the problems and their solutions. Also at this time any planned laboratory demonstrations are begun. These demonstrations include physics or chemistry experiments, computer operation, or use of electronics equipment. The demonstrations continue during the team competition for those who are not involved in the team competition.

The team competition takes place from 10:15 to 10:45 a.m. and consists of five or six problems, somewhat more difficult than the individual competition problems. Each school chooses a team of five and is assigned a classroom in which to work. The team members work together on the problems in any fashion they choose and the team captain returns the problems to the scorers at 10:45. The organization of the team effort varies greatly from school to school and is a very interesting aspect of the competition, perhaps one that could be further investigated. Again the solutions are preprinted and immediately available.

As soon as the papers are scored and the combined team scores (top three individual average plus team competition score) are calculated for each school, the participants meet en masse. In this meeting any difficulties with ambiguity or inaccuracy are discussed and any questions are answered. Then the results are announced. Perfect papers from the individual competition receive recognition; first and second place school teams receive ribbons; and the advisors of the winning team are rewarded with recognition and an apple.

Comments and Evaluation

It was found that near perfection is required in the mechanics of sponsoring the competition. Problems and solutions must be checked and rechecked for ambiguity, accuracy, and typographical errors. These activities require considerable time. Participation by several faculty members became necessary in order to keep the ratio of the amount of work per individual down and to insure that the problems and solutions would be read critically by those other than the problem choosers. Also, involvement by more individuals has increased the number of sources for potential competition problems, although some problems are chosen from problem books.

Sponsoring a math competition has shown to be of positive value in the college-high school community. Prospective college candidates are able to tour the facilities and see the laboratory demonstrations. The college is able to keep informed of the content of the high schools' math curriculum, bearing in mind that it is these schools that feed the college. An increased interest in

7

mathematics has been generated in the young people attending. This probably deserves the highest number of value units. It is highly recommended that colleges establish this type of program on their campus. It has been very rewarding.

INDIVIDUAL COMPETITION

ANNE ARUNDEL COMMUNITY COLLEGE
Arnold, Maryland

1. If $x^3 - kx+8$ is exactly divisible by x-4, find the value of k.

2. Because of limited space only one portable welder can be used on a particular job at a time. The job must be completed in 19 days. The contractor owns equipment which can complete the job in 24 days; he can rent for $50 per day equipment that can complete the job in 12 days. What is the least amount of rental the contractor should pay?

3. Let us assume that a team consists of three people: one man, one woman, and one child. How many different teams of this composition can be made from 3 men, 3 women, and 3 children?

4. Let N be any two digit number such that the tens' digit is one-half the units' digit. What is the largest positive whole number that always divides N evenly?

5. Find the length of the diagonal of a cube whose volume is numerically equal to its total surface area.

6. One glass contains 4 oz. of wine and another glass contains 4 oz. of water. From the first glass one ounce of wine is removed and poured into the water. From the mixture one ounce is removed and poured into the wine. What is the ratio of wine in the water glass to water in the wine glass?

TEAM COMPETITION

1. Imagine that you have three boxes, one containing two black marbles, one containing two white marbles, and the third, one black marble and one white marble. The boxes were labeled for their contents - BB, WW, and BW-but someone has switched the labels so that every box is now incorrectly labeled. You are allowed to take one marble at a time out of any box, without looking inside, and by this process of sampling you are to determine the contents of all three boxes. What is the smallest number of drawings needed to do this?

2. Two men play a game of draw poker in the following curious manner. They spread a deck o 52 cards face up on the table so that they can see all the cards. The first player draws a hand by picking any five cards he chooses. The second player does the same. The first player now may keep his original hand or draw up to five cards. His discards are put aside out of the game. The second player may now draw likewise. The person with the higher hand

8

then wins. Suits have equal value, so that two flushes tie unless one is made of higher cards. After awhile the players discover that the first player can always win if he draws his first hand correctly. What must this hand be?

3. How many locations are there on the surface of the globe where a man can walk 1 mile south, then 1 mile east, and then 1 mile north and end up where he started?
   A. 0   B. 1   C. 2   D. 3   E. more than 3

4. Find the numerical value of $(8^{\log_a \sqrt[3]{b}})^{\log_b a^2}$
   for any positive numbers a, b.   (a, b ≠ 1)

5. A regular pentagon is inscribed in a circle of radius R. Find a formula for the area A of the pentagon in terms of R. (Hint: Use trigonometry).

6. The moment the light turns green a truck enters an intersection with a velocity of 1 ft. per second. The truck accelerates, traveling 2 feet the 1st second, 4 feet the 2nd second, 6 feet the 3rd second, etc. A passenger car going at a uniform rate of 20 ft. per second in the same direction as the truck, enters the intersection 4 seconds later. In what second is the car ahead of the truck?

Results of February 12, 1972
Anne Arundel Community College
High School Mathematics Meet

SCHOOL	INDIVIDUAL SCORE AVERAGE	TEAM SCORE	FINAL SCORE
Andover	4.00	3.00	7.00
Annapolis	6.00	5.00	11.00
Arundel	5.33	5.00	10.33
Brooklyn Park	3.00	0.00	3.00
Glen Burnie	5.00	1.00	6.00
Martin Spalding	3.00	1.00	4.00
Northeast	4.67	3.00	7.67
Severn	5.00	2.00	7.00
Severna Park	6.00	4.00	10.00
Southern	4.33	2.00	6.33
St. Mary's	4.00	2.00	6.00

Perfect Individual Papers

Annapolis:	Carl Ullrich	Severn:	David Clayton
	Christopher Beierl	Severna Park:	Tim Cochran
	John Anderson		Bill Johnson
Arundel:	Scott Shephard		David Stevens
Northeast:	David Schubert	St. Mary's:	Warren Mason

A Report on an In-Service Computer Project for the Divisions of Mathematics, Science and Engineering at Prince George's Community College, Largo, Maryland.

By Peter J. Arbach
Assistant Professor of Mathematics

The project involved two activities:

1. Distribution of "Computer Information" packets at the 5 October 1971 Division Meeting.

2. A tour of the P.G.C.C. Computer Facilities from 3:00 p.m. to 4:30 p.m. October 7, 1971.

The objectives of the above activities were:

1. To create an awareness among the participants that the computer can be a valuable aid in the teaching of mathematics. Specific Fortran programs designed to achieve this objective were executed during the computer tour.

2. To eradicate some of the fears that the participants may have had about computers in general.

3. To familiarize the participants with functions of the various components of a computer system.

4. To familiarize the participants with the contents of the Data Processing curriculum as offered at P.G.C.C.

5. To illustrate the contents of the course, DAPR 153 - Fundamentals of Data Processing.

6. To present a brief historical background of digital computers.

7. To summarize the performance duties of selected computer job categories.

8. To illustrate the basic circuitry of the modern electronic high-speed computer (OR, AND and NOT GATES).

9. To present two simple flowcharts illustrating pictures of step-by-step processes.

10. To explain the mathematical demands placed upon students in the Data Processing curriculum.

11. To present each participant with a list of suggested programs, which could be used in mathematics courses.

12. To present each participant with a selected bibliography of books on Computers and Computer Programming for their future reference.

10

13. To encourage the participants to develop their knowledge of Computers and Computer Programming by presenting them with three different "learning options", which they could exercise in the future. They are NSF Summer Institutes, taking Computer courses at local colleges, and individual initiative. Printed material concerned with each of the above objectives was included in the "Computer Information" packets.

The rationale for the project was the sincere feeling on my part that instructors of Mathematics, Science and Engineering need to know about computers. In fact, no person can avoid being aware of the fact the modern electronic high-speed computer plays an extremely important role in the daily operation of our society. Banking, billing and bookkeeping procedures, for example, bring us into almost daily contact with the fruits of computers usage. The space program and all missile-associated weapons are highly dependent upon computers. In fact, computers can be said to have been "born out of war" and are the main components of that system whereby we humans attempt to prevent future wars. Computers are used to run factories, handle airline ticket reservations, solve complex mathematical and engineering problems, aid in medical research, perform statistical analyses of data, and aid in record keeping and information retrieval. Indeed, there are few areas of human intellectual endeavor in which computers have not been used. Therefore, in a very general sense, an introduction to what computers can do and how they do it should be a part of everyone's general education.

More important to the specific aims of this project, however, is the realization that recently the possibility of using the computer as a teaching aid has been recognized throughout the nation. The Committee on the Undergraduate Program in Mathematics has prepared and distributed newsletters to help inform the mathematical community about what is currently being done and what materials are available in undergraduate mathematics courses specifically involving computers. Certainly the first step in developing and implementing computer-oriented mathematics and science courses is to have mathematics and science faculty members who are proficient in computer technology and programming. I believe that the objectives of the project were consistent with the broad objective of developing a mathematics, science and engineering faculty, which is tuned in on computers.

Because the growth of electronic data processing has been so rapid, it has created many misconceptions and a general unawareness of the capabilities, limitations, purposes, and use of digital computers among the majority of the American citizenry. Professional educators are not immune from the above. I believe that the project helped alleviate some of this unawareness on the part of those who participated in it.

As a result of conducting this project, I learned many things. They are:

1. There were several participants who were very eager to learn something about computers. This alone made me feel that it was a worthwhile activity. (16 out of 41 faculty members participated).

2. There were several participants and non-participants who were apathetic to it in varying degrees. This leads me to the conclusion that innovations involving the computer and mathematics or science courses should only be attempted with highly motivated individuals. (25 out of 41 faculty members did not participate).

11

3. The Division of Computer Technology and professional staff of the Computing Center were extremely cooperative with me before and during the computer tour. Their assistance was encouraging to me in seeing it through to the end. They were enthusiastic about a project designed to disseminate knowledge of computers. This leads me to conclude that future programs of this nature are a definite possibility at P.G.C.C. Cooperation, such as outlined above, is essential to the success of projects of this type.

4. Much difficulty was encountered in scheduling an information session preliminary to the computer tour. I overcame this obstacle by preparing "Computer Information" packets and distributing them at a Division meeting. I encouraged those who intended to participate in the computer tour to read the contents beforehand. I would recommend to anyone intending to engage in an In-Service Computer Project such as this one to expect that scheduling will be a problem. Scheduling difficulties also precluded the possibility of a post-session for discussion purposes. For my project, discussion following the tour was done informally on a one-to-one basis.

5. Some of the participants were amazed at the speed, accuracy, and varied capabilities of the computer. Some shared my belief that the computer will have its greatest value in disciplines like mathematics and physical science, in which there is a large body of knowledge to be absorbed before a student can contribute significant new ideas. They also expressed the realization that computers can leave both the teacher and the student with more time for the creative part of education.

In conclusion, I firmly believe that projects such as the one described in this report would serve as an excellent "first step" in the direction of utilizing modern electronic high-speed computers in conjunction with mathematics, science and engineering courses at junior colleges and four-year colleges throughout the nation. The concept of computer-oriented mathematics and science courses has received impetus as a consequence of the advent of time-sharing computer systems via remote terminals.

SOME REFERENCES FOR "FUN PROBLEMS"

Suggested by Robert Greger, Assistant Professor of Mathematics
Harford Junior College.

PROBLEMATICAL RECREATIONS, published by Litton Industries, are
booklets that give some problems stated fairly simply;

FALLACIES IN MATHEMATICS, by E. A. Maxwell*, published by
Cambridge University Press, is also good;

FANTASIA MATHEMATICA and THE MATHEMATICAL MAGPIE, by Clifton
Fadiman, contain longer pieces as well as songs, poems, and a
number of cartoons;

The "metamathematical" theorem:

$$\forall \forall \exists \exists$$

(for every upside down A, there exists a backwards E.)

*Editor's note: it was my privilege to study with Professor Maxwell at
the 1968 Rutgers NSF institute for College Teachers of Mathematics. Of
the many life-long benefits of that association, the following paraphrase
of one of Professor Maxwell's witticisms is worth sharing: to multiply
two matrices, let your left eye move horizontally along a row of the
first while your right eye moves vertically down the corresponding column
of the second. D. Russell.

FORWARD?

The following is the first part of a letter received by some junior
college mathematics teachers in the State of Maryland.

- -

WILLIAM G. CHINN   539-29th AVENUE   SAN FRANCISCO, CALIFORNIA 94121

February 29, 1972

Dear Colleague:

At the recommendation of the ad hoc Committee on the Role of the Two-Year
College Teachers of Mathematics of the Mathematics Association of America,
and in recognition of the increasing need to be of service to the faculties
at two-year colleges, President Victor Klee appointed at the summer meeting
in August, 1971, a new standing committee to replace the above ad hoc
committee and the former standing Committee on Assistance to Sections on
Two-Year College Problems.

The new committee is called the Committee on Two-Year College Teachers of
Mathematics, and consists of fourteen individuals -- some from universities
and four-year colleges, but most from two-year colleges in accord with the
wish to attend to this particular level. Listed herewith are the names of
the members together with their professional affiliations.

Norman Barton	Vancouver City College
William G. Chinn	San Francisco City College
Richard A. Dean	California Institute of Technology
Gloria F. Cilmer	Milwaukee Area Technical College
Herbert J. Greenberg	University of Denver
Joseph Hashisaki	Western Washington State College
Calvin A. Lathan	Monroe Community College
Joseph S. Tamelah	Community College of Philadelphia
Ralph Mansfield	Chicago City College
G. Baley Price	University of Kansas
William L. Rice	St. Petersburg Junior College
William Swyter	Montgomery College
Arnold Wendt	Western Illinois University
June P. Wood	South Texas College

The first task that the Committee carried out at the request of the
Association's Executive and Finance Committees was a compilation of a list
of about 50 teachers of mathematics in the two-year colleges throughout the
United States and Canada who would be questioned periodically for some
feedback as to how the Association is doing to fill the needs of the two-
year college teachers of mathematics."

14

The following, on the letterhead of the Committee on the Undergraduate Program in Mathematics dated March 6, 1972, has been received by some of us and may be of interest to others.

March 6, 1972

Dear Colleague:

I am writing to acquaint you with some recent developments concerning the MAA's Committee on the Undergraduate Program in Mathematics (CUPM).

As you may recall, two questions dealing with CUPM appeared on the recent survey conducted by the MAA. A total of 6,748 members returned the questionnaire; the table below indicates the number of responses to Questions 28 and 29 which were received from persons in each of several categories:

A Total number of responses
B Responses from universities offering the Ph.D. degree
C Responses from universities and four-year colleges not offering the Ph.D. degree
D Responses from two-year colleges

28. Check the phrase which best expresses your opinion of the effect which the work of the Committee on the Undergraduate Program in Mathematics (CUPM) has had on collegiate mathematics.

	A	B	C	D
Strongly beneficial	1726	343	886	144
Moderately beneficial	2903	806	1165	250
Negligible	355	122	106	30
Adverse	173	66	60	12
No opinion	1337	252	161	40
No response	254	58	45	11

29. How has the work of CUPM affected you in your professional life?

	A	B	C	D
Has helped a great deal	1082	172	636	123
Has been moderately helpful	2365	587	1143	229
Has had little effect	1546	508	450	96
Has had an adverse effect	68	18	28	7
Has been largely unrelated to my professional life	1359	276	112	22
No response	328	86	54	10

15

a reversal was effected was that of the proposed phasing-out of the High School Summer Research Program. This program was reinstated after many people across the country wrote to their representatives and senators, protesting the NSF action (cf. Science, May 21, 1971, pp. 828-829). Failing some such development, CUPM's work in its present form seems doomed to cease. Although several CUPM proposals are presently before the NSF, the Foundation has indicated that it will at best be able to fund only a small number of these. In any event, the specific nature of the proposed projects will preclude CUPM's operating on the broad scale which in past years has enabled it to respond so readily to many needs and problems of the mathematical community.

Attached to this letter is a description of some of the publications which have resulted from CUPM activities during the past several years.

I feel very unhappy about the rapidly approaching demise of CUPM and am especially saddened because I can see no other forum in which mathematics faculties from institutions representing all parts of the spectrum can meet, interact, and exchange ideas.

Sincerely yours,

Alex Rosenberg

16

CATONSVILLE COMMUNITY COLLEGE

MATH FACULTY:

Anderson, Max	Professor	Full-time
Balma, Nancy	Lecturer	Part-time
Cole, Rita	Associate Prof.	Full-time
Dean, Richard	Lecturer	Part-time
Dohler, John	Lecturer	Part-time
Dorfman, Alan	Asst. Prof.	Full-time
Emery, Lloyd	Asst. Prof.	Full-time
Hardman, Frank	Assoc. Prof.	Full-time
Haynes, Tyler	Asst. Prof.	Full-time
Heinz, F. Eric	Instructor	Full-time
Myers, Jesse	Prof. Chairman	Full-time
Schott, Phyllis	Instructor	Full-time
Skane, Donna	Instructor	Full-time
Skane, Lawrence	Asst. Prof.	Full-time
Weber, Walter	Professor	Full-time

- -

SUMMARY OF TRANSFER CREDITS
Spring, 1971

Catonsville Community** College Courses	Equivalent Courses at the University of Maryland
Math 9, 101, 104, 107, 113	Not Transferable
Math 105 - Fundamental Concepts Math II (3)	Elective Math (lower level)
Math 106 - An Intro. to Statistical Methods(3)	Elective Math (lower level)
Math 110 - Introduction to Math I (3)	Math 110
Math 111 - Introduction to Math II (3)	Math 111
Math 114 - Technical Math II (3)	Elective Math (lower level)
Math 118 - Elementary Math Analysis (5)	Math 115
Math 119 - Calculus I (5)	Math 140
Math 201*- Calculus II (4)	

ARITHMETIC TEST

1. Take 2 away from 21.   ·   1

2. What is half of 3?   ɔ

3. Add 5 and 7.   57

4. Does 2 X 4 1/2 equal 2 + 7?   No

5. Which is larger, 0.000065 or 0.00065?   0.000065

6. How many times does 3 go into 8?   Twice

7. How many times does 9 go into 99?   Twice

8. Which is larger 3 or 23?   23

9. What is a number smaller than 4?   4

10. What is a number larger than 4?   4

Submitted by Professor Anonymous
    EREHWON COMMUNITY COLLEGE

17

PART II: COMPILATION OF DATA

THE CALL

The following was sent as indicated.

February 25, 1972

MEMORANDUM

TO: The Chairman of the Department of Mathematics of each junior college in Maryland

FROM: David Russell, President, MAJC - MATH
      Prince George's Community College
      Largo, Maryland 20870

        Please furnish the information requested below for an annual newsletter to be mailed in April. Let me have your replies by March 17. Do not stand on formality; I would prefer hand-jotted notes on the questionnaire to no reply at all. I will try to stylize the answers without altering the content.

A. Regarding each mathematics course:

    1. Title of course
    2. Course content, 1971-72 (photostatic copies of pages from the current catalogue will perhaps be the easiest form)
    3. Name of person to be contacted for further information about the course
    4. How many sections and approximate enrollment, fall, 1971
    5. Author and name of text, and pages covered (if not all)
    6. Transferability (most of us know of at least individual cases of transferability that may be of interest to others)
    7. Non-textual materials (audio-visual, reference, etc.)
    8. Innovative teaching methods (probably of individual instructors)
    9. Unsolved problems about the course (let us hope there are no unsolved problems in the course)

B. Name and rank of each mathematics teacher, and whether full-time (F/T) or part-time (P/T).

C. Comment on use of computer (what computer?) and other facilities, unless totally covered under A.

D. Describe projects completed, currently underway, or planned.

E. Other information of possible interest.

18

DR/vs

MATH 001   BASIC COLLEGE MATHEMATICS I   (Non-credit)
Four hours weekly; one semester.

A study of sets and set operations; the associative, commutative and
distributive laws; the arithmetic of signed numbers; fractions; the
rational and irrational numbers; percentages; ratio and proportion;
manipulating radical expressions; exponents and literal expressions; products
and factors; solving single variable equations; inequalities; absolute value;
two variable sentences and graphing on the Cartesian coordinate system.
Geometric concepts interwoven with all material where applicable.

MATH 002   BASIC COLLEGE MATHEMATICS II   (Non-credit)
Four hours weekly; one semester.

A brief review of the content of 001 followed by an intensive study
of two variable sentences and graphing on the Cartesian coordinate system
function notation; the logarithmic and exponential functions; quadratics;
systems of equations and determinants; elements of geometry and geometric
construction; the circular functions; trigonometric identities; and sequences
and series. Geometric concepts interwoven with all material where applicable

MATH 112   BUSINESS MATHEMATICS   (3 semester hours)
Three hours weekly; one semester.

Designed as part of the curriculum for business career programs, this
course reviews business arithmetic and some elements from elementary
algebra. Among the topics considered are simple and compound interest,
discount and markup with applications to marketing, banking, insurance,
tax, consumer and investment mathematics.

MATH 121   ALGEBRA AND TRIGONOMETRY   (4 semester hours)
Four hours weekly; one semester.

This course is designed primarily for the Engineering Technologies,
Algebraic concepts and operations; functions and graphing; linear equations
and determinants; systems of equations; inequalities; quadratic equations;
exponential, trigonometric and logarithmic functions are among the topics
included.
    Prerequisites: Passing of the mathematics portion of the ACT, or
completion of Math 002, or its equivalent, with a grade of "C" or better
within one year of registration for Math 121.

MATH 122   MATHEMATICS WITH CALCULUS I   (4 semester hours)
Four hours weekly; one semester.

This course is designed primarily for the Engineering Technologies,
and includes a continuation of trigonometry, the complex numbers, theory
of equations, variations, progressions, elements of analytic geometry,
limits, derivatives and applications, and integration and applications.
    Prerequisite: Math 121 or its equivalent within one year.

19

MATH 123   MATHEMATICS WITH CALCULUS II   (3 semester hours)
Three hours weekly; one semester.

This course is designed primarily for the engineering technologies and
includes differentiation of transcendental functions, methods of integration,
expansion of functions in series, and topics from differential equations.
Prerequisite: Math 122 or its equivalent within one year.

MATH 131   INTRODUCTION TO COLLEGE MATHEMATICS   (3 semester hours)
Three hours weekly; one semester

This is the first of a two semester sequence open to those not majoring
in mathematics, engineering, or the physical sciences. It covers a study
of sets, real numbers, functions, graphs, systems of equations, matrices,
inequalities, and linear programming with applications.
Prerequisite: Passing of the mathematics portion of the ACT test with
a score prescribed by the Mathematics Division, or passing of Math 002 with
a "C" within one year.

MATH 132   INTERMEDIATE COLLEGE MATHEMATICS   (3 semester hours)
Three hours weekly; one semester.

Study of logic, sequences, counting, probability, statistics, poly-
nomials, and transcendental functions with applications.
Prerequisite: Successful completion of Math 131 within one year.

MATH 151   INTRODUCTORY ANALYSIS (PRE-CALCULUS MATHEMATICS) (4 semester hours)
Four hours weekly; one semester.

Open to all qualified students who are planning to take calculus, who
require a preliminary course. Course content is as follows: Real numbers;
Linear, Quadratic, Trigonometric, Exponential and Logarithmic Functions;
Vectors, Complex Numbers; Plane Analytical Geometry; Sequences and Series.

Prerequisite: Adequate high school courses through trigonometry and
satisfactory score on the math portion of the ACT. Entrance may also be
obtained by completion of Math 002 with a grade of "C" or better within one
year.

MATH 191   CALCULUS AND ANALYTIC GEOMETRY I   (4 semester hours)
Four hours weekly; one semester.

Function notation; tangent; the derivative; derivative of polynomials;
the chain rule; derivatives of powers, products, quotients, implicit functions
higher derivatives; the antiderivative and applications; analytic geometry;
manipulation of vectors; graph sketching; and derivatives of the trigonometric
functions and the inverse trigonometric functions.
Prerequisite: Passing of the mathematics portion of the ACT with a
score prescribed by the Mathematics Division or successful completion of the
Math 151, or Math 121-122, or Math 131-132. Students demonstrating high
competence in algebra, trigonometry, analytical and/or solid geometry may be
considered for registration in this course.

20

MATH 192   CALCULUS AND ANALYTIC GEOMETRY II   (4 semester hours)
Four hours weekly; one semester.

The logarithmic and exponential functions and their derivatives;
hyperbolic functions; evaluation of integrals: trigonometric trig
substitution, partial fractions, by parts, and the parabolic rule. Limits,
continuity, the Mean Value Theorem, Fundamental Theorem of Integral Calculus.
Applications: parametric representation differentials, are length, curvature,
inertia. Improper integrals, polar coordinates and related topics.
     Prerequisite: Math 191 within one year.

MATH 201   CALCULUS AND ANALYTIC GEOMETRY III   (4 semester hours)
Four hours weekly; one semester.

Solid analytic geometry, vectors, partial differential, gradients,
normals to surfaces, the Implicit Function Theorem. Volume of solid of
revolution, the double integral, triple integration, cylindrical and spherical
coordinates. Infinite series, convergence, the integral test, alternating
series, the ratio test, Taylor's Theorem, Taylor series expansion, L'Hospital'
Rule.
     Prerequisite: Math 192 within one year.

MATH 202   LINEAR ALGEBRA   (4 semester hours)
Four hours weekly; one semester.

Topics from Linear Algebra: solutions of systems of equations, matrices,
determinants, Cramer's rule, rank, iterative methods; Vectors: vector spaces,
linear dependence and transformations, inverses, orthogonal bases; Implicit
function theorems, transformations, change of variables in multiple integrals;
Vector Field Theory: vector functions, fields, divergence and curl of a
vector field, line integrals; exact differentials; Green's Stokes' and
Gauss' Theorems.
     Prerequisite: Math 191-192-201 within one year.

MATH 212   DIFFERENTIAL EQUATIONS   (4 semester hours)
four hours weekly. Offered second semester only.

Solution of differential equations of order and degree one, separation
of variables, homogeneous functions, exact differentials, integrating
factors, Bernoulli's equation, linear independence, differential operators,
power series, equations of hypergeometric type, the gamma function, Bessel's
equation, Laguerre polynomials, Hermite and Legendre polynomials, Laplac.
transforms.
     Prerequisite: Math 191-192-201 within one year.

MATH 221   FUNDAMENTAL CONCEPTS OF MATHEMATICS I   (4 semester hours)
Four hours weekly; one semester.
     Open primarily to students in the Elementary Education Curriculum.

A general introduction to the number systems of arithmetic. The
integers, rational numbers and real numbers are developed deductively from
axioms for the natural numbers. Set theory, relations and functions are

21

used extensively in the definition of new structures. Additional topics are included from number theory, modular arithmetic, historically important numeration systems and number bases different from base ten.

Prerequisite: One unit of high school mathematics, preferably algebraic in nature.

MATH 222   FUNDAMFNTAL CONCEPTS OF MATHELIATICS II   (4 semester hours)
Four hours weekly; one semester.

Open primarily to students in the Elementary Education Curriculum.

A general introduction to the language and concepts of Modern Geometry. Geometry is developed using metric postulates. Set theory is used extensively in definition. Additional topics are included from logic, non-metric geometry, non-Euclidean geometry and measurement.

Prerequisite: One unit of high school mathematics, preferably geometric in nature.

MATH 241   STATISTICS AND PROBABILITY   (3 semester hours)
Three hours weekly. Offered second semester only.

An introduction to statistical methods, frequency distributions, measures of variation, sampling, estimation and inference with applications to commerical, economic, and industrial data. Introductory concepts of probability are included.

Prerequisite: Passing of the mathematics portion of the ACT with a score prescribed by the Mathematics Department.

The mathematics offerings are designed to provide adequate foundation course for the various curricula. Students enrolled in Arts and Science, Business and Public Administration, and some Career programs normally take the Math 131-132 sequence. The Engineering technology curricula require the Math 121-122-123 sequence. Engineering and mathematics or physics majois should take Math 191-192-201 and a choice of 202 or 212. Elementary education majors must take Math 221-222. Students in the Executive Secretarial Science and Financial Accounting career program should enroll in Math 112. Many of the above courses are also available to students on an elective basis.

Students whose background in mathematics is deficient will be required to take one or two semesters of Math 001-002. Those doing so must pass Math 002 with a "C" or higher to qualify for admission into Math 121, 131, 151, or 241. Determination of placement will be made on the basis of high school records and ACT math scores. Additionally, the Mathematics Division has a test which can be used to substantiate placement of students.

Course	Cognizant Instructor	# Sections/ Total Students Fall	Text	Trans- fer?	Supple- mentary Material
Math 001	Fox	8/121	Preparatory Fresh- man Mathematics Sagan & Wisthoff, 1st ed. Cummings Chapters 1 thru 6	Non credit	
Math 002	Sinnigen	9/112	Same as for 001 Chapters 7 thru 13	Non credit	
Math 112	Zalonis	2/49	Business Mathe- matics A Colle- giate Approach Roueche 1st ed. Prentice Hall Chapters 1 thru. 5 & 12 thru 18	No	Use is made of lay-type reference: Wall Street Journal, Financial sections of Newspapers, IRS Pamphlets etc.
Math 121	Lamb	4/88	Basic Technical Mathematics with Calculus; Wash. 2nd ed.,Cummings Chapters 1 thru 10, 12, 13 & 16	Yes	
Math 122	Devaney	1/16	Same as for 121 Chapters 11,14,17 thru 19,5,20, & 22 thru 24	Yes	
Math 123	Van Velsir	2/26	Same as for 121 Chapts. 19.6 thru 19.8 & 25 thru 29	Yes	
Math 131	Heffelfinger		Foundations of Mathematics Bush & Young 1st ed. McGraw- Hill-Trig & Logs for 3 wks. then Chapters 1,2,3, 8 & 9	Yes	Handouts are being used to cover both trigonometry and log- arithms

23

Course	Cognizant Instructor	# Sections/ Total Students Fall	Text	Trans-fer?	Supple-mentary Material
Math 132	Shirk	6/108	Same as for 131 Chapters 4,5,6, 7, 10 & 12	Yes	Some supple-mentary Material used by individual instructors due to poor quality of boo' s pres-entation
Math 151	Ricciardi	1/30	College Algebra & Elementary Func-tions-Johnson, Lensey, Slesnick Bates Cummings - Chapts. 1 thru 9	Yes	
Math 191	Ehler	4/84	Calculus & Analytic Geometry-Schwartz, 2nd ed., Holt, Rinehart & Winston Chapters 1 thru 4	Yes	
Math 192	Edwards	2/26	Schwartz Chapters 5 thru 8 and 13	Yes	
Math 201	Kahn	2/23	Schwartz, Chapters 9,10,11,12 Spiegel (Schaum's Outline Vector Analysis) Sections on Green's, Gauss' & Stokes' Theorems	Yes	As noted
Math 202	Mayne	Offered in Spring only	Linear Algebra WITH Applications Campbell Appleton Century Crofts Chapters all	Yes	

Course	Cognizant Instructor	#Sections/ Total Students Fall	Text	Transfer?	Supplementary Material
Math 212	Davis	Offered in Spring only	Elementary Differential Equations, 4th ed., Rainville and Bedient McMillan Chapters 1-7, 15, 17-19	Yes	
Math 221	Devaney	3/65	Modern Mathematics A Modern Approach 2nd Ed., Wheeler Brooks & Cole	Yes Elem. Educ.	
Math 222	Chesley	Offered in Spring only	Geometry: A Modern Introduction Keedy & Nelson Addison & Wesley	Yes Elem. Educ.	
Math 241	Mayne	Offered in Spring only	Introduction to Probability & Statistics Mendenhall, 3rd ed. Wadsworth	No*	

*Hopkins reputedly has
accepted for some
business students.

25

MAT 9
(0:3,0)
PREPARATORY MATHEMATICS is a non-credit course designed for students who do not meet the prerequisites for enrollment in a credit course. Topics will be chosen from algebra, geometry, and trigonometry depending upon the individual's level of achievement and his curricular requirements. In some instances, more than one semester of MAT 9 will be necessary to accomplish the preparation for enrollment in a credit course. Successful completion is necessary for enrollment in credit courses.

MAT 104
(3:3,0)
P:note
FUNDAMENTAL CONCEPTS IN MATHEMATICS I is designed for students in elementary education and provides insight into the basic concepts of arithmetic. Topics covered include the origin of numbers, structure of positional number systems, principles underlying the fundamental operations and relations with the natural numbers, integers, and rational numbers. Prerequisite: One year of college preparatory mathematics.

MAT 105
(3:3,0)
P:
MAT 104
FUNDAMENTAL CONCEPTS IN MATHEMATICS II is an extension of MAT 104, Fundamental Concepts in Mathematics I. Topics covered include the elementary concepts of nonmetric and metric geometry, elementary logic and truth tables, properties of the real numbers, elementary probability theory, and statistics. (Recommended for students in elementary education).

MAT 106
(3:3,0)
P:Note
AN INTRODUCTION TO STATISTICAL METHODS provides an accurate but basic survey of data analysis. Methods include data collection and packaging and discriminating between valid and invalid uses of statistics, as well as elementary methods for decision making. Topics include measures of central tendency and dispersion, probability and the binomial and normal distributions, estimate of parameters (means and proportions), tests of hypothesis, two variable linear correlation, and linear regression. Students in the areas of education, business, and the arts and sciences will find this course enhances and clarifies large portions of literature in their specializations. Prerequisite: one year of college preparatory mathematics.

MAT 107
(3:3,0)
P:Note
BUSINESS MATHEMATICS covers the review of arithmetic and algebraic operations, exponents and radicals, linear equations, and numbering systems to other bases. This is followed by simple and compound interest, discounts and present value, annuities certain and amortization. Prerequisite: at least one year of high school algebra.

MAT 110
(3:3,0)
P:Note
INTRODUCTION TO MATHEMATICS I is open to students not majoring in math or the physical or engineering sciences. The language and the deductive nature of mathematics are emphasized through the models of the real numbers. The real numbers are described both empirically and axiomatically. Also covered are the notions of relation, function, and such examples as the straight line, the parabola, the exponential and its inverse, the logarithm function and the trigonometric functions. Work with finite structures may be included as an optional topic. Prerequisite: Three years of college preparatory mathematics is

recommended; two years of college preparatory mathematics
and a satisfactory score on the classification test are required.
Those who fail to meet the prerequisites should enroll and
successfully complete MAT 9.

MAT 111   INTRODUCTION TO MATHEMATICS II is a natural and advisable
(3:3,0)   extension of Introduction to Mathematics I. The language and
P: scientific method emphasized in the first course frames a study of
MAT 110   systems of linear equations, linear programming, Boolean
          algebra and logic, counting, probability, and matrices.
          Applications from business and the social, behavioral, and life
          sciences are considered as an integral part of these topics.
          Note: also see MATH 212.

MAT 113   TECHNICAL MATHEMATICS I is planned for students in technology
(3:3,0)   and designed to prepare the student for work in industry. The
P: Note   course includes review of arithmetical operations, introduction
          to the use of the slide rule, fundamental algebraic operations,
          linear equations, ratio, proportion, variation, complex numbers,
          functions and graphs, vectors, solution of trigonometric
          functions of right triangles, and logarithms. Prerequisite: One
          year of algebra or MAT 9 and satisfactory achievement on the
          classification test.

MAT 114   TECHNICAL MATHEMATICS II is planned for students in technology
(3:3,0)   and is designed to prepare the student for work in industry. It
P or E: includes material on graphs and equations of straight lines,
MAT 113   systems of linear equations, quadratic equations, solutions of
          triangles, trigonometric identities and equations, graphs of
          trigonometric functions and their inverses and polar coordinates.

MAT 118   PRECALCULUS MATHEMATICS is open to students in mathematics,
(5:5,0)   physical sciences, engineering and secondary education. The
P: Note   topics covered include logical formulas, open statements, groups
          and fields, inequalities, induction, relations and functions
          (such as polynomial, circular, exponential and logarithmic
          functions and their graphs), and inverse functions. Prerequisite:
          Three years of college preparatory mathematics and a satisfactory
          score on the classification test.

MATH 119 CALCULUS I includes the following topics: analytic geometry of
(5:5,0)   two dimensions with the conic sections, translations and rotations,
P:Note   the general second degree equation, limits and continuity, the
          derivative and its applications, extrema problems and their
          applications, graphing, antiderivatives and definite integrals,
          Fundamental Theorem of Calculus, properties and evaluation of
          definite integrals, applications, to area, work, fluid pressure,
          and the calculus of the trigonometric functions. Prerequisite:
          MAT 118 or four units of college preparatory mathematics
          (including trigonometry) and a satisfactory score on the
          classification test.

27

MAT 201   CALCULUS II continues the study of the calculus and includes the
(4:3,2)   following topics: solid analytic geometry, elementary vector
P: analysis in two and three dimensions, calculus of the exponential,
Mat 119   logarithmic and inverse trigonometric functions, curves given by
          parametric equations and by polar coordinates, techniques of
          integration, to include substitution, integration by parts, partia.
          fractions, applications to solids of revolution, center of mass,
          and improper integrals.

MAT 202   CALCULUS III Covers the following topics: approximate integra-
(4:3,2)   tion, infinite series, indeterminate forms, covergence and
P: divergence of series, power series, Taylor's series, operations
Mat 201   with series, partial and directional derivatives and their
          geometric interpretation, total differential, extrema problems,
          Lagrange multipliers, exact differentials and line integrals,
          and double integrals with applications to area, density, mass,
          surface area and solids of revolution, and linear algebra.

MAT 203   CALCULUS IV covers the following topics: review of linear algebra,
(4:3,2)   vector spaces, Fourier series, implicit function theorems and
P: transformations, vector field theory, and theorems of Green and
MAT 202   Stokes.

MAT 212   INTRODUCTION TO MATHEMATICS III, Elementary Calculus with Appli-
(3:3,0)   cations, is an introduction to differential and integral calculus,
P:Note   intended primarily for students in general education or business
          administration. Application of the calculus in the biological,
          managerial, and social sciences will be included in the course.
          Prerequisite: MAT 110 and MAT 111, or consent of instructor.

MAT 215   TECHNICAL MATHEMATICS III introduces the techniques of elementary
(3:3,0)   calculus. Emphasis will be placed upon the use of calculus as a
P: tool for solving problems. Techniques for computing and inter-
MAT 114   preting the derivatives and integrals of the elementary functions
          will be stressed. A brief introduction to differential equations
          is included.

28

CATONSVILLE COMMUNITY COLLEGE

COURSE	For Info. Contact:	NUMBER OF SECTIONS			ENROLLMENT			TEXT	AUTHOR	Pgs. Covered
		Day	Eve.	Total	Day	Eve.	Total			
MATH 9	A. Dorfman	6	1	7	134	25	159	Elementary Algebra	Moon and Davis	All
104	W. Weber	4	1	5	102	14	116	Modern Elem. Mathematics	Malcolm Graham	1-175
195	W. Weber	-	-	-	-	-	-	Modern Elem. Mathematics	Malcolm Graham	177-367
106	R. Cole	-	1	1	-	34	34	Elementary Statistics	Paul Hoel	All
107	E. Heinz	2	1	3	54	16	70	Elementary Business Math	George Hadley	All
110	M. Anderson	16	4	20	444	91	535	Models in Math or Elem.Func.	Heckenbach&Kegley All *Rita Cole	1-235
111	M. Anderson	4	1	5	84	16	100	Finite Mathematics	Guillermo Owen	*
113	F. Hardman	5	2	7	150	40	190	Basic Tech. Math with Cal.	Allyn Washington	*
114	F. Hardman	1	1	2	22	11	33	Basic Tech. Math with Cal.	Allyn Washington	*
118	F. Emery	2	1	3	67	14	81	Fields & Functions	Bedford, Hammond	1-484
119	L. Emery	2	1	3	40	-	40	Coll. Cal. with Ana. Geo.	Protter & Marrey	1-378
201	L. Emery	1	1	2	19	14	33	Coll. cal. with Ana. Geo.	Protter & Marrey	330-629
202	L. Emery	1	1	1	20	-	20	Coll. Cal. with Ana. Geo.	Protter & Marrey	538-548, 631-900
203	L. Emery	1	1	1	-	10	10	Mod. Math. Analysis	Protter & Marrey	263-358,479-520
212	A. Dorfman	-	1	-	-	10	10	A Short Course in Cal.	Ceder and Outcalt	550-635
215	F. Hardman	2	1	3	42	16	58	Basic Tech. Math with Cal.	Allyn Washington	*

*The sequence covers the text except for chapters 21, 28, 29.

MATH 100 - INTRODUCTION TO COLLEGE MATHEMATICS (4)

This course bridges the gap between a weak mathematical foundation and the knowledge necessary for the study of courses in advanced mathematics that are part of many curricula. The content of this course presupposes a poor background in secondary school mathematics. The fundamentals of arithemetic and algebra will be covered. Four hours lecture each week. MATH 102, 110 or 150 could normally follow this course.

MATH 101 - COLLEGE ALGEBRA (3)

Prerequisite: High school Algebra (2 yrs. or equivalent).

A study of fundamental operations, sets, functions, sequences, and series, quadratic equations in two variables, complex numbers and theory of equations.

MATH 102 - COLLEGE ALGEBRA AND TRIGONOMETRY (4)

Prerequisite: High School trigonometry with a grade of "B" or permission of the department.

This course combines College Algebra and Analytic Trigonometry. It is offered primarily for students in Eggineering and Science Transfer curricula.

MATH 103 - ANALYTIC TRIGONOMETRY (3)

Prerequisite: 2 years of high school algebra or equivalent.

A course built on the modern definition of function, range and domain of function, terminal point function, trigonometric functions, trigonometric identities, inverse trigonometric function, trigonometric equations, logarithms, right triangles, law of sines, law of cosines, vectors, and polar coordinates.

MATH 110 - COLLEGE MATHEMATICS I (3)

Prerequisite: MATH 100, 2 years of secondary school Algebra, or permission of the department.

This course is intended for students with majors other than Mathematics, Science and Engineering. Topics include: the real number system ,linear functions, transformations and inequalities, algebraic, transcendental relations, functions and their graph.

MATH 111 - COLLEGE MATHEMATICS II (3)

Prerequisite: MATH 110

A continuation of the College Mathematics I including further study of functions and their graph. The course includes an introduction to matrices, vectors and the calculus.

MATH 120 - CALCULUS I AND ANALYTIC GEOMETRY (4)

Prerequisite: Quality work in either 3 1/2 years of secondary school mathematics, or MATH 102 or equivalent.

An introductory course in calculus combined with elements of analytic geometry. Topics include the derivative and antiderivative of algebraic functions developed intuitively with physical and mathematical applications; areas as limits of Riemann sums; the Fundamental Theorem of Integral Calculus; introduction to vectors; the straight line and the conic sections; graph-sketching using the derivative; differentiation and integration of trigonometric, inverse trigonometric, logarithmic, exponential and hyperbolic functions. 4 hours lecture per week.

31

MATH 121 - CALCULUS II (4)
        Prerequisite: MATH 120
        A continuation of MATH 120. Topics include a review of the derivatives
and antiderivatives of elementary functions; the evaluation of integrals by
trigonometric and rational substitutions; partial fractions, integration by
parts use of tables, numerical methods and improper integrals, concepts of
limit, continuity, properties of continuous functions, the Mean Value Theorem
and L'Hospital's Rule; differentials; parametric equations; arc length; polar
coordinate derivatives, area and arc length; vectors and curve sketching in
three dimensions.

MATH 150 - TECHNICAL MATHEMATICS I (4)
        Prerequisite: MATH 100, 2 years of Secondary School Algebra or
equivalent.
        This course, along with MATH 100, provides mathematical foundations
necessary for additional course work in the Technical Mathematics Sequence.
Topics include: elements of plane and solid geometry, numerical trigonometry,
basic logarithms, with simple applications in the Technologies.

MATH 151 - TECHNICAL MATHEMATICS II (4)
        Prerequisite: MATH 150 or Trigonometry
        A study of the principles of the slide rule, advanced algebra, analytical
trigonometry, and analytical geometry and their application to a wide range
of technical situations.

MATH 152 - TECHNICAL MATHEMATICS III (4)
        Prerequisite: MATH 151 or permission of the department
        A continued study of the fundamentals and technical application of
mathematics to the real world. This course includes an introduction to applied
calculus.

MATH 210 - ELEMENTARY CONCEPTS OF MATHEMATICS (4)
        Prerequisite: Year of high school math or permission of the instructor.
        The historical development of numeral systems, the properties and
operations associated with decimal and non-decimal number systems; elements
of logic and set theory are some of the topics included to provide a basis
for investigating the arithmetic and algebraic axioms of operations with the
real number system in theory and application, inductive proof, mathematical
systems, groups, fields, divisibility and systems of numbration. This course
is required for all elementary education transfer students.

MATH 211 - ELEMENTARY CONCEPTS OF GEOMETRY (4)
        Prerequisite: Math 210 or equivalent.
        This course continues the development of mathematics from Math 210,
further developing the ideas of logic, algebra of sets, geometrical structures,
measurement, congruence, similarity, graphs in the plane, and geometry of
the sphere.

MATH 220 - CALCULUS III (4)
        Prerequisite: MATH 121
        A continuation of MATH 121. Topics include review of vectors and
curve sketching in three demensions; partial differentiation, continuity
in several dimensions, gradients, directional derivatives, normals and
tangent planes; multiple intergration including volumes of solids of
revolution; infinite sequences, series and test for convengence; Taylors
Formula and Taylor series; Fourier series.

MATH 221 - CALCULUS IV AND DIFFERENTIAL EQUATIONS (4)
Prerequisite: MATH 220

A continuation of MATH 220. Topics include an introduction to ordinary differential equations: methods of solution of first order linear and non-linear differential equations; methods of solution of second and higher order linear differential equations; general techniques of solution including separation of variables intergrating factors, variation of parameters, and series solution, additional topics to be chosen from the La-place Transform, partial differential equations, calculus of variations, linear algebra.

MATH 230 - INTRODUCTION TO STATISTICS (3)
Prerequisite: MATH 100, or permission of the instructor

A general introduction to the principles and techniques of statistics: central tendencies, spread, and correlations. Examples chosen from the fields of physical, natural, and social sciences, business, education, and data processing.

MATH 232/EDU 232 - TEACHING MATHEMATICS IN THE ELEMENTARY AND MIDDLE SCHOOLS(3)
Prerequisite: MATH 211 or permission of the department

A course primarily aimed at the purposes of mathematics instruction through the analysis of topics and techniques. It includes the organization of units of instruction; materials of instruction: methods of classroom presentations with emphasis on the discovery approach and the technique of evaluating pupil progress.

MATH 239 - INTRODUCTION TO CUISENAIRE RODS

CHARLES COUNTY COMMUNITY COLLEGE

NUMBER OF COURSE	NUMBER OF SECTIONS	APPROX.NO. EACH SEC.	TEXT
100	4	25	Essentials of Math-2nd Ed. Wiley, R. V. Person
101	1	20	Fundamental of College Algebra Allendoerfer and Oakley
103	Offered in Spring	Not offered	Analytic Geo. Kindle, Schaum Plane Trig. with Tables 3rd Ed. Fuller Theory and Problems of Trig. Ayers,Schaums Outline Standard Math Tables -Standard Ed. Selby Chum.
110	3	30	First Yr. Coll. Math, Ayers Fundamentals of Math, Richardson
111	2	30	(Same as Math 110 Richardson) Calculus, Ayers
120	2	25	Calculus & Analytic Geo.Schwartz Theory & Prob. of Cal. Ayres
121	1	25	Same as Math 120 Theory & Prob. of Advanced Calc. Spiegel, M. Schaum
150	3	20	Essentials of Math (Same as 100) First Yr. Coll. Math, Ayers
151	2	20	Tech.Math with Cal. Rice & Knight, 2nd Ed. College Algebra, Spiegel,Schaum
152	1	18	(Same as Math 151 Rice & Knight) Calc., Ayers, Schaum
210	2	-	Math For Elementary School Teachers, Garstems & Jackson
211	Offered in Spring	-	Same as Math 210
220	1	10	Same as Math 120,121(Schwartz) Vector Analysis, Spiegel,Schaum
221	1	8	Elem. Diff. Equations, Lyman M. Kells Differential Equations, Schaum
230	Offered in Spring	-	Statistics An Intutive Approach 2nd Ed. Weinberg & Schumaker Statistics, Spiegel, Schaum
232/Ed 232	1	30	
239	1	40	

34

DUNDALK COMMUNITY COLLEGE

MATH 100   Developmental Mathematics   (0)
           (three hours a week; one semester.)

           A fundamental course for students who need skill reinforcement
           in mathematics.   (This course is offered every semester.)

MATH 105   Fundamental Concepts in Mathematics   (3)
           (three hours a week; one semester.)

           Prerequisite: The equivalent of one year of High School Algebra
           or Math 100 or consent of the Math/Science Division Chairman.

           An introductory course into the basic concepts of arithmetic.
           Topics include the origins of number, structure of a positional
           number system, principles underlying the fundamental operations
           and computation with approximate numbers.   This course is de-
           signed primarily for those entering Elementary Education.

MATH 111   Introduction to Mathematics   (3)
           (three hours a week; one semester.)

           Prerequisite: The equivalent of one year of High School Algebra
           of Math 100 or consent of the Math/Science Division Chairman.

           Designed for the student not planning to major in mathematics
           or the physical or engineering sciences.   Develops mathematical
           concepts, including logic and nature of proof, fundamental con-
           cepts of arithmetic and algebra, topics from Euclidean and
           coordinate geometry and statistics.

MATH 121   Business Math   (3)
           (three hours a week; one semester.)

           Prerequisite: The equivalent of one year of High School Algebra
           or Math 100 or consent of the Math/Science Division Chairman.

           Basic business mathematics, including a review of arithmetical
           and algebraic operations, fundamental statistical methods, interest
           and discount problems, graphs, annuities and amortization.

MATH 123   Introduction to Statistics   (3)

           Prerequisite: Math 100 or equivalent, or consent of instructor.

           A study of modern statistical analysis for use in education, busi-
           ness, and the social sciences.   Topics include grouping of numerical
           data, frequency distribution, measures of central tendency, prob-
           ability and sampling, prediction and correlation, statistical infer-
           ence based on samples and determination of significant differences.

35

DUNDALK COMMUNITY COLLEGE

Name of person to contact for futher information.....

       Dr. Vernon O. Crawley, Chairman
       Division of Science/Math

One section of each courses is offered, with the following enrollment:

Math 100	25
Math 111	15
Math 105	9
Math 121	13
Math 123	10

Texts:

  Math 100:
      Alwin & Hackworth, Programmed Algebra, Part I, II.

  Math 105:
      Wheeler, Rurie, Fundamental College Mathematics

  Math 111:
      Miller & Herren, Mathematical Ideas: An Introduction

  Math 121:
      Wheeler & Peeples, Modern Mathematics for Business Students

  Math 123:
      Freund, John, Statistics: A First Course

Faculty: Dr. Vernon O. Crawley, Associate Professor; full-time

      Mr. M. Kip; part-time

      Miss Joyce Hill; part-time

NOTE: Dundalk Community College first opened its doors to students last
      September.

001 - BASIC MATHEMATICS REVIEW (0)
Three hours per week.

The Basic Mathematics Review Program is designed to help students gain a proficiency in the rudiments of elementary mathematics and to provide a firm foundation for credit courses. The program is divided into 6 flexible units, each specializing in a fundamental area of elementary mathematics, allowing the department to tailor a program to meet the specific needs of a particular student. The use of programmed materials will make it possible for each student to work at his own pace.

The student should be aware that his placement in MATH 001 and his progress throughout the course depends in a large measure upon his particular background and/or maturity. A student entering MATH 001 will be placed in one of the segments "A" thru "F" depending upon his ability at that time. Therefore, it could take as short a time as a few weeks or as long as two semesters to successfully complete the course.*

A brief description of the six segments follows:

001A - ARITHMETIC
Numbers, their operations and properties.
Prerequisite: NONE.

001B - ELEMENTARY ALGEBRA I
Sets, addition, subtraction, multiplication, and division of algebraic expressions; simplification of algebraic expressions; solution of linear equation in one variable.
Prerequisite: MATH 001A

001C - ELEMENTARY ALGEBRA II
Solutions of equations in two variables; graphing, polynomials; factoring; rational fractions; fractional and quadratic equations; elementary radical forms.
Prerequisite: MATH 001B.

001D - INTERMEDIATE ALGEBRA
Contemporary approach to real number systems; complex number systems, set relations, functions; inequities; absolute value; graphing (2 variables); polynominals; equations; logarithms.
Prerequisite: MATH 001C.

001E-GEOMETRY
Properties of polygons; congruent and similar polygons; circles; areas and volumes; lines; distances; methods of proof.
Prerequisite: MATH 001C.

001F-NUMERICAL TRIGONOMETRY
Trigonometric ratios, identities; solution of triangles.
Prerequisite: MATH 001C and MATH 001E.

FOR FURTHER INFORMATION CONTACT: Joyce Hill
TOTAL SECTIONS: 19 - APPROXIMATE ENROLLMENT: 358

MATH 001
(Continued)

TEXTS: Algebra-Programmed, Part I, II, III, IV

by Alwin and Hackworth

Programmed Units in Mathematics   )   Basic Mixture & Problems
)   Basic Work Problems
)   Basic Motion Problems

by Ewell Thomas Denmark, Jr.

Programmed Trigonometry

by A. H. Crawford

Simon's Individualized Study Units in Arithmetic
          (Duplicating Masters)

Programmed Geometry

by F. A. Greene

TRANSFERABILITY: Not Applicable

(7)   Non-textual Materials - SRA Mathtapes

(8)   Innovative Teaching Methods - varies from teacher to teacher.
      We are trying small group discussions to supplement programmed material.

(9)   Unsolved Problems - How to better motivate students using programmed
      materials, finding good materials in all areas.

C .   We are not using computer yet, but hope to be able to involve its
      use in some way soon.

D.   Projects - Evaluation of the program - gathering statistics on
      successes and failures.

E.   None

100 - INTRODUCTION TO DIGITAL COMPUTING (1)
      Two hours per week; one semester.
      Prerequisit·'   One year of High School Algebra or MATH 001C.
      A general i: roduction to digital computers encompassing the history
of digital computing machines, fundamentals of operation, the language of
computers, the algorithm, computer programming, and applications appropriate
to the background of the students.   During the course each student will be
expected to write and run a simple computer program.
NOTE: This course alone will not satisfy the mathematics requirement for
       graduation.

FOR FURTHER INFORMATION CONTACT: Philip Sticha, Edward Zeidman

TOTAL SECTIONS: 1 - APPROXIMATE ENROLLMENT 15

TEXTS: Information

By Scientific American

Problem Solving with the Computer

By Edwin R. Sage

Uses the HP2100A computer with pencil marked card input

TRANSFERABILITY: University of Maryland Equivalent   CMSC   005

This course uses the "computer appreciation" approach augmented by an introd-
uction to BASIC programming. Emphasis is on computer applications outside
the business, science, and mathematics areas. Programming experiences are
treated first to provide a background for the discussions which follow. The
Sage next is suitable for the programming part of the course although it goes
possibly further than required. For the "appreciation" part of the course,
however, there appears to be no suitable yet reasonably priced text. This
is and most probably will continue to be the major problem area in the course,
along with that of testing "appreciation" in a non-negative way. A term paper
or program on an area of the students choice has been used by some instructors
for grading purposes. Movies such as Bell Labs "The Incredible Machine" and
"The Thinking Machine" plus other examples of computergraphics, music, or
"intelligence" are presented. We are seeking examples of computer use in
the arts and humanities for presentation here.

102 - INTRODUCTION TO PROGRAMMING (1)
        Four hours per week; five weeks.
        Prerequisite: One year of High School Algebra or MATH 001A, B, and C,
        or consent of instructor.

An introduction to programming using the BASIC language, designed for
both liberal arts and science students. During the course, each student will
prepare and run a number of computer programs of varying complexity.
NOTE; This course alone will not satisfy the mathematics requirements for
graduation.

FOR FURTHER INFORMATION CONTACT: Philip Sticha, Edward Zeidman

TOAL SECTIONS: 3   - APPROXIMATE ENROLLMENT: 63

TEXTS: Problem-Solving with the Computer
            by Edwin R. Sage

        BASIC for Beginners
            by Wilson Y. Gately and Gary G. Bitter

        Computer Science: BASIC Language Programming
            by A. I. Forsythe, T. A. Keenan, R. I. Organicle,
            and W. Stenberg

BASIC Programming
    by J. G. Kemeny, and T. E. Kurtz

Computers, BASIC, and Physics
    by H. D. Peckham

TRANSFERABILITY: Loyola College Equivalent   Eg. 110L
                   Towson State Equivalent   Transfer or fee
                                                      elective only

The course has a problem-solving orientation with assigned problems covering
normal arithmetic operations, functions, solving, random number generation
and simulation, plotting on the teletype/printer/plotter, and the solution of
simultaneous linear equations using the MAT commands. Some instructors have
required a final project using one or more of the above techniques.

Students use our HP2100A Computer with pencil marked card input.

109-MATHEMATICS FOR ELEMENTARY EDUCATION I (3)
    Three hours per week, one semester
    Prerequisite: Two years of High School Mathematics (one year of which
                   must be Algebra) Or MATH 001A through C or consent of
                   instructor

    Sets, system of cardinal numbers, numeration systems, system of integers,
elementary number theory, fractions and rational numbers. This course is
designed for Elementary Education and Early Childhood Development majors.

FOR FURTHER INFORMATION CONTACT: Jerome Bloomberg, William Steger
TOTAL SECTIONS: 4 -- APPROXIMATE ENROLLMENT: 93
TEXT: Fundamental College Mathematics
            By Ruric Wheeler

TRANSFERABILITY: University of Maryland Equivalent   3 credits of MATH 30

(7) We utilize in this course, films, overlays, geoboards, cuisinaire rods,
     and other manipulative devices used in the elementary school. Also,
     elementary textbooks and related materials are used to illustrate
     relevance of topics.

(8) We require at least one student observation of an elementary school
     mathematics class. These observations are held at various schools in
     the community, and an effort is made to expose our students to a variety
     of education formats. (e.g., open schools, non-graded schools, etc.)
     Students have reacted to this experience in a very positive way.

C.   None

D.   We are attempting to integrate tapes into this course. The use of these
     tapes, as we envision it, is threefold:
     (1) To provide opportunites for spot remediation
     (2) To development selected topics
     (3) Enrichment

E.   We are offering a mini-course entitled "Field Studies in Elementary
     Mathematics Education." A course description has been sent to you. We
     strongly urge students in MATH 109 to participate in this course.

40

MATH 110 – MATHEMATICS FOR ELEMENTARY EDUCATION II (3)
        Three hours per week, one semester.
        Prerequisite: MATH 109 and one year of High School Geometry
        (or MATH 001E) or consent of instructor.

This course includes: the real number system, elementary logic, intuitive geometry, introduction to deductive geometry, measurement, functions and graphs. This course is designed for Elementary Education and Early Childhood Development majors.

FOR FURTHER INFORMATION CONTACT: Jerome Bloomberg, William Steger

TOTAL SECTIONS: Not offered Fall, 1971

PRESENT ENROLLMENT:

    Spring, 1972   TOTAL SECTIONS: 2   APPROXIMATE ENROLLMENT: 37

TEXT: Elementary Geometry
        by Vincent Haag, Clarence Hardgrove, and Shirley Hill

TRANSFERABILITY: Towson State Equivalent   50.205
                 University of Maryland   3 credits of Math 31

(7) We utilize in this course, films, overlays, geoboards, cuisinaire rods, and other manipulative devices used in the elementary school. Also, elementary textbooks and related materials are used to illustrate relevance of topics.

(8) We have instituted a mathematics "laboratory" that is held about once every three weeks. Some of the topics covered are:
    (1) paper folding
    (2) topology in the elementary school
    (3) geoboards
    (4) regular polyhedron

    We require at least one student observation of an elementary school mathematics class. These observations are held at various schools in the community, and an effort is made to expose our students to a variety of education formats. (e.g., open schools, non-graded schools, etc.) Students have reacted to this experience in a very positive way.

C. None

D. We are attempting to integrate tapes into this course. The use of these tapes, as we envision it, is threefold:
    (1) To provide opportunities for spot remediation
    (2) To development selected topics
    (3) Enrichment

E. We are offering a mini-course entitled "Field Studies in Elementary Mathematics Education." A course description has been sent to you. We strongly urge students in Math 110 to participate in this course.

115 – ELEMENTS AND IDEAS OF MATHEMATICS I (3)
        Three hours per week; one semester
        Prerequisite: One year of High School Algebra or MATH 001C or consent
                      of instructor.

        Designed for the student not planning to major in mathematics or a directly related area, this course develops mathematical concepts with emphasis on their importance in the arts and sciences. Included are: logic and the nature of proof, fundamental concepts of arithmetic and algebra,

topics from Euclidean and coordinate geometry and statistics.

FOR FURTHER INFORMATION CONTACT: Frank Greene

TOTAL SECTIONS: 9 - APPROXIMATE ENROLLMENT: 200

TEXT: Mathematical Ideas: An Introduction
            by Vern E. Helren and Charles D. Miller

TRANSFERABILITY: Loyola College Equivalent   MA 105L

                   Towson State Equivalent   50.201

                   University of Maryland Equivalent   3 credits of MATH 003

(7) A number of overheads have been developed, based on the text.

(8) This particular course is taught in many different ways, e.g. conventional
     lectures, small group seminars. The mode depends on the instructor.

(9) The course is now in a developing stage and is tending to more and more
     use of the computer as a teaching tool to develop ideas.

116-ELEMENTS AND IDEAS OF MATHEMATICS II (3)
    Three hours per week; one semester
    Prerequisite: MATH 115 with grade of C or better and one year of High
                    School Geometry (or Math 001E) or consent of instructor.
    Designed for the student not planning to major in mathematics or a
directly related field, this course presents further development of the
concepts of Elements and Ideas of Mathematics I along with additional areas
of mathematics important in the arts and sciences. Included are: mathematics
and the study of nature; concepts and applications of trigonometry, calculus,
and non-Euclidean geometry; fundamentals of probability.

FOR FURTHER INFORMATION CONTACT: Janice Dykacz

TOTAL SECTIONS: 1 - APPROXIMATE ENROLLMENT: 11

TEXTS: What is Calculus About?
            by W. W. Sawyer

        Introduction to Mathematics   (Trigonometry only)
            by Cooley and Wahlert

and
NOTES BY INSTRUCTOR

TRANSFERABILITY: Towson State Equivalent   Free elective - 3 credits
                                                    for general requirements,
                                                    but not for Business,
                                                    Science, or Math majors.

                   University of Maryland Equivalent 3 credits of college
                                                    level mathematics.

(7) Course at present is primarily notes.
     Films shown: Flatland
                   Mathematics of the Honeycomb

(8) The class structure is small groups (about 3 per group) working on
     problems. (Notes and homework problems are supplied.) The instructor
     talks with each group in class and guides discovery of mathematical
     concepts. Lecture is minimal, except for those topics which are not
     oriented to problem solving. The grade is based on quizzes (40% done
     individually), homework (40% done collectively) and class participation

(20%). The grade may be supplemented by projects in any area related to a topic in the syllabus.

125 - FINITE MATHEMATICS WITH APPLICATIONS I   (3)
    Three hours per week, one semester.
    Prerequisite: Two years of High School Mathematics (one year
                  of which must be Algebra) or MATH 001A through D (segment
                  D may be taken concurrently) or consent of the instructor.

    Sets, relations, functions, graphing of linear functions, systems of linear equations and inequalities, vectors and matrices, linear programming, probab ity, mathematics of finance.

FOR FURTHER INFORMATION CONTACT: William Beck, Carl Cuneo

TOTAL SECTIONS: 3 - APPROXIMATE ENROLLMENT. 100

TEXTS: Modern Mathematics for Business Students
        by Wheeler & Peoples
        College Business Mathematics
        by Hanna & Walker

TRANSFERABILITY: Towson State Equivalent   50.209

(7) Teacher made overheads.

(8) Guest Lecturers from Business.

(9) Seeking better ways to teach the material to average student.

C. Not in use at present.

D. Closer work with teachers in the business courses to help in appling the mathematics.

126 - FINITE MATHEMATICS WITH APPLICATIONS II (3)
    Three hours per week, one semester.
    Prerequisite: MATH 125 or equivalent or consent of the instructor.

    Probablity, random variables, distribution functions, graphing of quadratic and exponential functions, differential and integral calculus (non-rigorous), statistics, mathematics of finance.

FOR FURTHER INFORMATION CONTACT: William Beck, Carl Cuneo

TOTAL SECTIONS: Not offered Fall, 1971
PRESENT ENROLLMENT:
        Spring, 1972   TOTAL SECTIONS 2   APPROXIMATE ENROLLMENT: 28

TEXTS: Modern Mathematics for Business Students
        by Wheeler and Peoples
        Mathematics of Finance
        by Cissell-Cissell

TRANSFERABILITY: Towson State Equivalent   50.209

(7) Teacher made overheads.

(8) Guest Lecturers from Business.

(9) Seeking better ways to teach the material to average students.

C. Not in use at present.

D. Closer work with the teachers in the business courses to help in appling the mathematics.

131- COLLEGE MATHEMATICS I (4)
     Five hours per week, one semester.
     Prerequisites: SAT mathematics score above 525 and two units of High
     School Algebra and one unit of High School Geometry and some High School
     Trigonometry or MATH 001A thru F or consent of the instructor.

     The system of real numbers, functions, exponential and logarithmic
functions, trigonometric functions, complex numbers, theory of equations,
systems of equations, matrices and determinants, sequences, mathematical
induction, binomial theorem, inverse functions, additional topics selected
by the instructor.

FOR FURTHER INFORMATION CONTACT: Eric Ellis
TOTAL SECTIONS: 4 – APPROXIMATE ENROLLMENT: 125

TEXT: Modern Algebra and Trigonometry
           by L. Vincent Robison

TRANSFERABILITY: Loyola College Equivalent   Ma 100E

                   Towson State Equivalent   50.115

                   University of Maryland Equivalent   Math 10 or Math 11

(7) Non-textual Materials – Overhead projector (transparencies).
(8) Innovative Teaching Methods – Extensive problem sessions at end of
                                   semester for review purposes.
C-D We are exploring the possibility of using the computer (BASIC language)
     as a teaching device in this course.
     The BASIC language would be taught, thereby the computer could be used
     as a tool in solving the more difficult and interesting problems.

132 – COLLEGE MATHEMATICS II (4)
     Five hours per week, one semester.
     Prerequisite: MATH 131 or SAT Mathematics score above 600 and two
     units of High School Algebra and one unit of High School Geometry
     and one-half unit of Plane Trigonometry (some Analytic Geometry is
     desirable but not necessary), or consent of instructor.

     Straight lines, loci, conic sections, transformations in the plane,
polynomials and rational fractional functions, transcendential curves, polar
coordinates, three dimensional systems, parametric equations, vectors, sequences
definition of limit and continuity, additional topics selected by the instructor.

FOR FURTHER INFORMATION CONTACT: Eric Ellis
TOTAL SECTIONS: 2 – APPROXIMATE ENROLLMENT: 31

TEXTS: Analytic Geometry
            by Gordon Fuller

         Matrices With Applications
            by Hugh G. Campbell

TRANSFERABILITY: Towson State Equivalent   50.119
                   University of Maryland Equivalent   4 credits College
                                                        level math
(7) Non-textual materials – Overhead projector (transparencies).
(8) Innovative Teaching Methods – Extensive problem sessions at end of
                                   semester for review purposes.

44

151 – DIGITAL COMPUTING LAB (variable, 1 to 3 credit/semester)
     No lecture, independent lab work; one semester
     Laboratory fee: $10 per semester
     Prerequisite: MATH 100 or MATH 102 or consent of instructor.

A problem solving lab using the digital computer under supervision and direction of faculty from various subject areas.

FOR FURTHER INFORMATION CONTACT: Philip Sticha

TOTAL SECTIONS: 1 – APPROXIMATE ENROLLMENT: 5

TEXT: BASIC Programming
          by Kemeny & Kurtz

TRANSFERABILITY: Towson State Equivalent   Free elective

Since there is no fixed content each student must seek transfer based on the specific work he completed.

Sample projects have involved machine language programming, statistical analysis programming, programming solutions to simple electronic circuit equations. Current projects include computer graphics, biological models, and four part musical harmony. The student may have one or two faculty advisors on the project depending on the subject. For example, the current biology project involves growing microorganisms in the laboratory under supervision of a member of the biology faculty.

Free use of our HP2100A instructional computer in course.

189 – SLIDE RULE WORKSHOP (1)
     Three hours per week; five weeks.
     Prerequisite: One year of High School Algebra or MATH 001A, B, and C, or consent of instructor.

The use of the slide rule. Topics include the structure of the slide rule, its logarithmic basis; the C and D scale; the CI scale; the folded scales; the A, B, and K scales; the trigonometric functions; the log scale. The student will study techniques and exercises designed to familiarize him with these scales and their use.

NOTE: This course alone will not satisfy the mathematics requirement for graduation.

FOR FURTHER INFORMATION CONTACT: Frank Greene

TOTAL SECTIONS: 2 – APPROXIMATE ENROLLMENT: 20

TEXT: The Slide Rule
          BY F. Greene

TRANSFERABILITY: Not Applicable

(7) The course uses overheads and film loops
(9) Many students who take the course, need only multiplication, division and square root for their science course(s) but have no knowledge of trigonometry.

204 – MODERN MATHEMATICS (4)
     Four hours a week; one semester.
     Prerequisite: MATH 213 or consent of instructor.

Fundamental definitions in the theory of sets, ordering, cartesian product, relations and functions, inverse relations and functions, sequences,

algebra of sets, Venn diagrams, power sets, finite and infinite sets,
equivalence sets, cardinal number, applications to logic and Boolean algebra,
point-set theory, Bolzano-Weierstrass theorem.

FOR FURTHER INFORMATION CONTACT: Hassan Namini

TOTAL SECTIONS: Not offered in Fall 1971

(7) Non-textual materials are given if necessary.
(8) Attempt has been made not to introduce any complex ideas in the course
     of presentation of the subject, but if no other choice is left the complex
     idea is broken into small parts for full comprehension by the student.
(9) No unsolved problems.

C.   No use of computer.

211 - ANALYSIS I (4)
     Five hours per week; one semester.
     Prerequisite: MATH 132 or equivalent, or consent of instructor.

     Functions, limits, continuity, differentiation of algebraic functions,
applications of the derivative, Rolle's theorem, mean-value theorem, the
definite integral and applications, mean-value theorem for integrals, the
fundamental theorem of integral calculus.

FOR FURTHER INFORMATION CONTACT: Jerome Bloomberg, Janice Dykaca, Frank Greene
TOTAL SECTIONS: 3 - APPROXIMATE ENROLLMENT: 66

TEXT: The Calculus with Analytic Geometry
          by Louis Leithold
TRANSFERABILITY: Loyola College Equivalent   Ma 101E & L

(7) a. Reference: Thomas, "Calculus" - used extensively
     b. Audio-visual: Technifax Visucom Projectuals - Calculus
(8) All exams are open book.
(9) How to complete the syllabus when most students did not complete t h
     syllabus from Analysis I.

212 - ANALYSIS II (4)
     Five hours per week; one semester
     Prerequisite: MATH 211 or equivalent, or consent of the instructor.

     Center of mass; differentiation and integration of logarithmic,
exponential and trigonometric functions; techniques of integration, approximate
integration, polar coordinates; hyperbolic functions; indeterminate forms and
improper integrals; sequences, infinite series.

FOR FURTHER INFORMATION CONTACT: Jerome Bloomberg, Janice Dykacz
TOTAL SECTIONS: 1 - APPROXIMATE ENROLLMENT: 16

TEXT: The Calculus with Analytic Geometry
          by Louis Leithod
TRANSFERABILITY: Loyola College Equivalent   Ma 102E & L

(7) a. Reference: Thomas, "Calculus"
     b. Reference: Smith, "Limits and Continuity"
     c. Audio-visual: Technifax Visucom Projectuals - Calculus
(8) Nothing extraordinary.
(9) How to get through the first 10 1/2 chapters of Leithold in one semester.

46

213 - ANALYSIS III (4)
    Five hours per week; one semester.
    Prerequisite: MATH 212 or equivalent or consent of the instructor.

    Vectors and parametric equations, vector functions, partial different-
iation, multiple integrals, surface integrals, Green's theorem, divergence
(Gauss') theorem, Stoke's theorem, introduction to differential equations.

FOR FURTHER INFORMATION CONTACT: Frank Greene
TOTAL SECTIONS. Not offered in Fall 1971
PRESENT ENROLLMENT:
    Spring 1972   Total Sections; 1 - APPROXIMATE ENROLLMENT: 12
TEXTS: The Calculus with Analytic Geometry
            by Louis Leithold
        Calculus and Analytic Geometry (Part Two)
            by Thomas

TRANSFERABILITY: Loyola College Equivalent   Ma 201E
                  University of Maryland   Math 241

(7-8) All students in this course know how to run programs in BASIC and when
       appropriate computer applications are made.

215 - LINEAR ALGEBRA (4)
    Five hours per week; one semester.
    Prerequisite: MATH 212 or equivalent or consent of the instructor.

    Geometrical vectors; matrices, linear equations, vector spaces, linear
transformations, determinants, eigenvectors and inner product spaces.

FOR FURTHER INFORMATION CONTACT: William Beck

TOTAL SECTIONS: 1 - APPROXIMATE ENROLLMENT: 16

TEXT: An Introduction to Linear Algebra
           by E. F. Krause

TRANSFERABILITY: Towson State Equivalent   Free elective
                  University of Maryland equivalent   Math 21

C. Computer not used.

217 - ELEMENTARY DIFFERENTIAL EQUATIONS (3)
    Three hours per week; one semester.
    Prerequisite: MATH 213 or equivalent, or consent of instructor.

    Exact solutions for first order equations; basic theory, techniques,
and applications of linear systems and higher order linear equations; power
series solutions; Laplace transform solutions.

FOR FURTHER INFORMATION CONTACT: Michael Brand

TOTAL SECTIONS: 1 - APPROXIMATE ENROLLMENT: 10

TEXT: Elementary Differential Equations and Boundary Value Problems
           by William E. Boyce and Richard DiPrima

TRANSFERABILITY: Loyola College Equivalent   Ma 202L
                  Towson State Equivalent   Free elective
                  University of Maryland Equivalent   Math 66

(7-8) Instructor's notes used to supplement text. The notes are on basic
       mathematical analysis stressing rigor in proof.

248 - COMPUTER PROGRAMMING AND NUMERICAL METHODS   (2)
       Three hours lecture, one hour laboratory a week; ten weeks.
       Prerequisite: MATH 102, MATH 212 (may be taken concurrently)
         or consent of instructor.

An introduction to FORTRAN programming and numerical methods for the
solution of problems using digital computers. The course treats errors,
interpolation, solution of algebraic equations, linear systems of
equations, numerical integration, and solution of differential equations.
Using both BASIC and FORTRAN, programming and use of numerical algorithms
are emphasized rather than the algorithms themselves.

FOR FURTHER INFORMATION CONTACT: Philip Sticha, Edward Zeidman

TOTAL SECTIONS: Not offered in Fall 1971

PRESENT ENROLLMENT:
       Spring 1972   Total Sections 1 - Approximate Enrollment: 12

TEXTS: Elementary Computer Applications
           by Barrodale, Roberts, Ehle
        A Guide to FORTRAN IV Programming
           by McCracken
OPTIONAL: Computers, BASIC, AND Physics
           by Peckham

TRANSFERABILITY: Towson State Equivalent   Free elective ("not
                                                   toward a math major
                                                   because computer courses
                                                   offered at Towson are not
                                                   credited toward our math
                                                   major").

Uses HP 2100A computer with pencil marked card
input for both BASIC AND FORTRAN.
Uses problem-solving approach with a laboratory/
discussion period.

251 - INTRODUCTION TO ABSTRACT ALGEBRA (3)
       Three hours per week; one semester.
       Prerequisite: MATH 212 or equivalent, or consent of instructor.
   Group theory including permutation groups, cyclic groups, homomorphisms
and isomorphisms, and factor groups; introduction to the theory of rings,
integral domains, and fields.

FOR FURTHER INFORMATION CONTACT: William Beck
TOTAL SECTIONS: Not offered in Fall 1971
This course is presently being taught on a seminar basis.
   Present enrollment: 2 students.

TEXT: A first course in Abstract Algebra
          By John B. Fraleigh
TRANSFERABILITY: Loyola College equivalent   Ma 301L & E
                  Towson State Equivalent   50.361
                  University of Maryland Equivalent 3 credits college
                                                     level math

C. Computer not used.

48

201 – ELEMENTARY STATISTICS (3)
    Three hours a week; one semester.
    Prerequisites: Two years of High School Algebra or MATH 001D or
    consent of instructor.

Includes the grouping of numerical data, frequency distributions,
measures of central tendency, probability and sampling, prediction and
correlation, statistical reasoning, and applications.

FOR FURTHER INFORMATION CONTACT: Hassan Namini, Edward Zeidman
TOTAL SECTIONS: 3 – APPROXIMATE ENROLLMENT: 50

TEXTS: Elementary Statistics (Data Analysis for the Behavioral Sciences)
        by Paul A. Games & George R. Klare
       How to Lie with Statistics
        by Darrell Huff

TRANSFERABILITY: University of Maryland Equivalent   Free elective

(7) Use of short methods for solving statistical problems (short cut
    formulas) by means of calculators. Note that the short cut formulas
    are introduced with complete proofs and reasoning but the students
    are not responsible for the proofs in any quiz or examination.
(8) When the subject material is presented to students they are asked
    to solve problems of different areas such as business, education,
    biology, --- in order to comprehend the subject completely.

    Attempt has been made not to introduce any complex ideas in the
    course of presentation of the subject, but if no other choice is left
    the complex idea is broken into small parts for full comprehension
    by the student.
(9) No unsolved problems.

C. This is an elementary course, and the electronic calculators are
    serving well to solve almost every problem we have.
E. If there is interest and enough enrollment in the future we may
    divide Statistics 201 into 3 parts:

            1. Stat (201a) – for Business Students
            2. Stat (201b) – for Social Science Area
            3. Stat (201c) – General Statistics

202 – PROBABILITY AND STATISTICS (3)
    Three hours a week; one semester.
    Prerequisite: Mathematics 212 (which may be taken concurrently)
     or consent of instructor.

Axioms of probability, dependent and independent events and
corresponding probability laws, distributions (discrete and continuous),
expected values and moments, moment generating functions and characteristic
functions, sampling, estimations, test of hypotheses, regression and
correlation, analysis of variance.

FOR FURTHER INFORMATION CONTACT: Hassan Namini
TOTAL SECTIONS: Not offered in Fall 1971.
This course is presently being taught on a seminar basis.
Present enrollment; 2 students.

TEXT. Introduction to the Theory of Statistics
        By Alexander McFarlane Modd and Greybill

(7) Non-textual materials are given if necessary.
(8) Attempt has been made not to introduce any complex ideas in the course of presentation of the subject, but if no other choice is left the complex idea is broken into small parts for full comprehension by the student.
(9) No unsolved problems.
C. No use of computer.

Francis A. Greene
Associate Professor
Chairman, Mathematics Department

FULL-TIME FACULTY

William Beck	Assistant Professor
Jerome Bloomberg	Assistant Professor
Michael Brand	Assistant Professor
Carl Cuneo	Assistant Professor
Janice Dykacz	Assistant Professor
Eric Ellis	Instructor
Joyce Hill	Assistant Professor
Hassan Namini	Associate Professor
William Steger	Assistant Professor
Edward Zeidman	Assistant Professor

PART-TIME FACULTY

Robert Goren
Frank Groat
Charles Hughes
William Moulds
Gerald Riggleman
William Slowikowski
Philip Sticha

  The Essex Instructional Computer facility is a Hewlett-Packard HP2100A minicomputer with 16K 16-bit words of memory. Peripherials include a paper tape reader, marked card reader, teletype punch, high speed printer, disc memory, cathode ray tube graphic/alphameric terminal (Tektronix 4010), and high speed X-Y plotter. These facilities are utilized by students in classes in chemistry, engineering, and physics, most of whom have taken the introductory course MATH 102. Students use card BASIC and operate the control terminal by themselves or with the assistance of a student aid.

50

MA 050-051 MATHEMATICS LABORATORY
A two-semester course designed for students who need a review of high school
algebra as preparation for enrolling in the college level mathematics
courses. First semester includes: sets; operations with the numbers of
ordinary arithmetic and rational and irrational numbers; open rational ex-
pression; solution sets of equations and inequalities. Second semester
includes: application of equations and inequalities; solution sets of
systems of equations and inequalities; factoring polynomials and quadratic
equations; relations and functions. Three hours per week.

MA 101, 102 INTRODUCTION TO MATHEMATICS (3,3)
A two-semester course which integrates algebra and trigonometry. Topics
covered in the first semester include: sets and operations; the real num-
bers system; fundamental operations of algebra; first degree equations in
one and two variables; relations, functions, inverse functions and their
graphs; factoring of polynomials and operations with fractions; exponents
and exponential functions; logarithms and logarithmic functions.

Topics covered in the second semester include: the circular trigonometric
functions; trigonometric solution of triangles; vectors trigonometric func-
tions of sums and differences of angles; complex numbers; polynomial func-
tions and their graphs; quadratic equation theory, inverse trigonometric
functions; systems of equations, matrices and determinants; sequences;
probability. Three hours a week. Prerequisite: 2 1/2 years of college
preparatory mathematics or MA 050-051.

MA 103 FOUNDATIONS OF MATHEMATICS (3)
A one semester course for students who are not planning to follow a math-
ematics or science oriented program. Topics covered include: sets, number
systems, numeration systems, geometry, probability, logic, and number theory
Prerequisite: one year of high school algebra or MA 050-051.

MA 104 ELEMENTARY STATISTICS (3)
Collection and organization of data, presentation of data in tabular and
graphic form, frequency distributions, measures of location and dispersion,
introduction to sampling theory, prediction, correlations. Three hours a
week. Prerequisite: Two years of high school algrbra or MA 050-051.

MA 107, 108 TECHNICAL MATHEMATICS (3, 3)
A two-semester integrated course designed for students in career programs.
Topics include practical geometry, algebraic notations, algebraic functions,
radicals, exponents, logarithms, slide rule trigonometry through the solutio
of the oblique triangle. Prerequisite: Two years of high school algebra
or MA 050-051 Three hours a week.

MA 201 INTRODUCTION TO CALCULUS (3)
A one semester course which introduces the techniques of elementary calculus
including graphical methods and techniques for computing and interpreting
the derivatives and integrals of elementary functions with applications.
Prerequisite: MA 107-108 or MA 101-102.

51

MA 202-203-204   CALCULUS AND ANALYTIC GEOMETRY   (4, 4, 4)
A three semester course. The first semester includes the topics of limit,
continuity, derivative, chain rule, Rolle's and Mean Value Theorems; def-
inite and indefinite integrals and applications in the first semester. The
second semester covers transcendental functions, integration methods, plane
analytic geometry, hyperbolic functions, polar coordinates, vector and par-
ametric equations. The third semester includes solid analytic geometry
by vectors, partial differentiation, multiple integrals, infinite series,
complex numbers, and differential equations. Prerequisite: MA 101-102 or
equivalent. Four hours a week.

MA 205   FUNDAMENTAL CONCEPTS OF ARITHMETIC   (3)
A course designed to give the student a thorough understanding of the nature
and function of number systems. Topics include: historical development of
numeration systems; decimal notation and arithmetic in other vases, elemen-
tary set theory, modular arithmetic and elementary number theory; modern
terminology in elementary algebra. Three hours a week.

MA 108 ELEMENTS OF MATHEMATICS   (3)
A course which provides modern mathematical topics for students of the life
sciences and physical sciences. Topics covered include: sets and operations
relations, functions and inverse functions, Boolean algebra, development of
number systems, probability, algebraic systems, vector spaces, vectors and
matrices, and functions with vector arguments. Three hours a week. Pre-
requisite: 2 1/2 years of college preparatory math or MA 050-051.

FREDERICK COMMUNITY COLLEGE
MATHEMATICS COURSE INFORMATION

TITLE OF COURSE	CONTACT PERSON FOR FURTHER INFORMATION	NO. OF SEC. '71 FALL ENROLL.	TEXT, AUTHOR & Pgs. COVERED	(1) TRANSFERABILITY	NON-TEXTUAL MATERIALS	INNOVATIVE TEACHING METHODS
Mathematics Laboratory MA 50-51(0)	Mr. Sussmann Mr. Luttrell	2/50	Algebra-Programmed by Alwin and Hackworth – Books 1,2,3,4 (3,4 optional)			Programmed texts. Student must attain a grade of at least 70 on each chapter test before proceeding on to next chapter.
Introduction to Mathematics MA 101(3) MA 102(3)	Mr. Sussmann Mr. Luttrell	MA 101 6/130 MA 102 1/25	"Modern Algebra & Trigonometry" by Robison, J.V. MA 101-Chaps 1-3, 5-7, 10 MA 102-Chaps 4, 8-15 "Intermediate Algebra" by Ashley & Harvey Chaps 1-7, 8, 13	University of Maryland Bowie State Frostburg State Mt. St. Mary's Salisbury State Shepherd (MA 101) St. Mary's Towson State (1) Depending on curriculum into which student transfers	Overhead projector preparations	College Algebra: In College algebra course, Instructor hands out the objectives for each Chapter on the first day of class. He also provides a problem set to be done in conjunction with the mastery of the objectives. The text-book used in the course is a conventional one. The course is then broken up into three types of activity periods – a lecture-group discussion, individual study, and testing. A strict schedule is distributed for those who plan to COMPLETE THE COURSE BY THE END OF THE SEMESTER. Students are evaluated at the end of each chapter by taking a test on those concepts which they should have mastered. They can not continue on until they have achieved 100% mastery

TITLE OF COURSE	CONTACT PERSON FOR FURTHER INFORMATION	NO. OF SECTIONS 1971 FALL ENROLLMENT	TEXT, AUTHOR, AND PAGES COVERED	(1) TRANSFERABILITY	NON-TEXTUAL MATERIALS	INNOVATIVE TEACHING METHODS
				(1) Depending on curriculum into which student transfers		

Trigonometry: In the trig course, the instructor gives out a final exam on the first day of class, with the instructions that the problems on it are the type which everyone should master for the course. At the end of each chapter of the conventional text, there is a chapter test. If a person doesn't do as well as he desired, he can take a re-test and improve his grade. However, in this course, he gets only one chance to improve his grade. The best grades for all chapters are averaged for the final grade, and a conventional grading system is used.

at a certain level. These levels are C, B, and A, and are determined by the diff-iculty of problems on the tests. A Student decides at what level he wishes to work, and he must attain at least that grade on all tests during a semester, but he may take tests as often as he wishes.

TITLE OF COURSE	CONTACT PERSON FOR FURTHER INFORMATION	NUMBER OF SECTIONS/ 1971 FALL ENROLLMENT	TEXT, AUTHOR, AND PAGES COVERED	(1) TRANSFERABILITY	NON-TEXTUAL MATERIALS	INNOVATIVE TEACHING METHODS
Foundations of Mathematics MA 103 (3)	Mr. Luttrell	Course Introduced in Spring '72 1/25	"College Mathematics For General Education" by Nichols, E.D.	Frostburg State University of Maryland Bowie State Salisbury State St. Mary's Towson State		MA 101 Programmed Text. Student must attain a score of at least 70 on each chapter test before proceeding to next chapter.
Elementary Statistics MA 104 (3)	Mr. Luttrell	1/25	"Modern Elementary Statistics" by Freund, J. C.	University of Maryland Bowie State Frostburg State Salisbury State St. Mary's Towson State		
Technical Mathematics MA 107 (3) MA 108 (3)	Mr. Sussmann	MA 107 1/20 MA 108 (Spring 1972) 1/15	"Technical Mathematics With Calculus" by Rice & Knight MA 107, Chaps. 1-12 MA 108, Chapts. 13-23	(1) Depending on curriculum into which student transfers		

TITLE OF COURSE	CONTACT PERSON FOR FURTHER INFORMATION	NO. OF SECTIONS 1971 FALL ENROLLMENT	TEXT, AUTHOR, AND PAGES COVERED	(1) TRANSFERABILITY	NON-TEXTUAL MATERIALS	INNOVATIVE TEACHING METHODS
Introduction to Calculus MA 201 (3)	Mr. Sussmann	1/9	"Technical Mathematics With Calculus" by Rice & Knight Chaps 24-26	University of Maryland, Bowie State, Salisbury State, St. Mary's, Towson State	Overhead Projector Preparations	
Calculus and Analytic Geometry MA 202 (4) MA 203 (4) MA 204 (4)	Mr. Luttrell	MA 202 1/27 MA 203 1/20 MA 204 1/5	"Calculus and Analytic Geo." by Thomas, G.B. MA 202, Chaps 1-6 MA 203, Chaps 7-12 MA 204, Chaps 13-20	University of Maryland, Bowie State, George Washington, Salisbury State, St. Mary's, Towson State	Overhead Projector Preparations	
Fundamental Concepts of Arithmetic MA 205 (3)	Mr. Luttrell, Mr. Sussmann	Offered Spring Only 2/50	"Foundations of Elementary School Arithmetic" by VanEngen, Harding and Stochl Chaps 1-13	University of Maryland, Bowie State, Frostburg State, Salisbury State, St. Mary's, Towson State	Overhead Projector Preparations	
Elements of Mathematics MA 208 (3)	Mr. Sussmann	Not offered in last 3 years	"Topics in Modern Mathematics" by Nahikian, H.M.	(1) Depending on curriculum into which student transfers. University of Maryland, Bowie State, Frostburg State, Salisbury State, St. Mary's, Towson State		

TITLE OF COURSE	CONTACT PERSON FOR FURTHER INFORMATION	NO. OF SECTIONS/ 1971 FALL ENROLLMENT	TEXT, AUTHOR, AND PAGES COVERED	(1) TRANSFERABILITY NON-TEXTUAL MATERIALS	INNOVATIVE TEACHING METHODS
Differential Equations MA 209 (3)	Mr. Sussmann	New Course currently being proposed	"A Short Course in Differential Equations" by Rainville and Bedient	Being determined (1) Depending on curriculum into which student transfers	

FREDERICK COMMUNITY COLLEGE

Mathematics faculty:

Mr. Charles R. Luttrell	Associate Professor	(F/T)
Mr. Wm. A. Sussmann	Associate Professor	(F/T)
Dr. Walter D. Foster	Lecturer	(P/T)
Mr. Charles A. Dixon, Jr.	Lecturer	(P/T)

Projects:

a. In Spring of 1972 we are trying a programmed text for MA 101 (Algebra) (See Enclosure 2). Students take a series of 8 chapter tests and one comprehensive test. Students must make a grade of at least 70 on each chapter test before proceeding on to the next test. Retest on each chapter is allowed in order to improve grade. Results to date appear satisfactory.

b. In Spring of 1973 we are planning to introduce a course "MA 209 Differential Equations" for those students who complete the "MA 202, 203, 204 Calculus and Analytic Geometry" sequence. Approval for introducing the course and transferability of the course are now being determined.

GARRETT COMMUNITY COLLEGE

Math 111-112   College Mathematics I, II

Instructor: Vincent de Lany

Texts: (1) Willerding & Hoffman - Chapters 11, 12, 14, 15
                      College Algebra and Trigonometry (Wiley)

                 (2) Fleenor, Shanks, and Brumfiel
                      The Elementary Functions (addison-Wesley)
                      All Chapters covered.

Enrollment: 3   (1 section)

Transferability: No information yet.

Non-Textual materials: None
This small class size has allowed ample discussion and has presented no
problems.

Math 105-106   College Algebra and Trigonometry I, II (not in catalog)

Instructor: Vincent de Lany

Text: Willerfing and Hoffman
                         College Algebra and Trigonometry Hope to cover
                         Chapters 1-9

Enrollment: 6 (1 section) Spring 22

Transferability: No information yet

Non-textual materials: None
This course is conducted at a slower pace than the College Math above and shows
signs of appealing to a wide cross-section of students. The college math has
attracted only the most capable students.

Math 201-202   Calculus I, II

It is expected that this course will be offered Fall, 1972 for the first time.
(At present Garrett Community College has only first-year students.)

Instructor: Vincent de Lany (expected)

For further information contact: Miss Ethel Thayer - Math 103

                                  Mr. Oscar Harman - Math 101-102 and
                                                     Math 121-122

100   INTRODUCTORY ALGEBRA (0)

A beginning algebra course covering the algebraic scale, fundamental operations with signed numbers, simple equations, verbal problems, factoring, fractions, systems of equations, and quadratic equations. Three hours each week.

101   COLLEGE ALGEBRA (3)

Work with fundamental operations, factoring, fractions, exponents and radicals, linear equations, variations, functions and graphs, systems of equations, determinants, quadratic equations, inequalities, progressions, mathematical induction, binomial theorem, logarithms, complex numbers, and theory of equations. Prerequisite: Two units of high school algebra or its equivalent. Three hours each week.

102   PLANE TRIGONOMETRY (3)

The study of trigonometric functions, identities, the radian, graphs, addition formulas, solution of triangles, inverse functions, trigonometric equations, and complex numbers. Prerequisite. Mathematics 101 or concurrent registration therein. Thre hours each week.

103   GENERAL MATHEMATICS (3)

An algebra course designed to acquaint the student with sets and set properties, properties and subsets of the set of reals and problems involving fundamental operations, linear and quadratic functions, exponents, radicals, logarithms, functions and graphs, permutations, combination, probability, binomial theorem, progressions, matrices, determinants and systems of linear equations. Prerequisite: Two units of high school algebra or Math 100. Three hours each week.

104   MATHEMATICS OF INVESTMENT (3)

Designed primarily for business students, the course considers the analysis and solution of problems in simple and compound interest, annuities, the evaluation of bonds, depreciation and capitalization, building and loan associations, life annuities, and life insurance. Prerequisite: Mathematics 100 or 103. Three hours each week.

105   BUSINESS MATHEMATICS (3)

This course is intended to review and extend elementary arithmetic - fractions, decimals, percentages, discounts, ratio and proportion - and teaches the student to apply arithmetic in simple everyday problems. This course is designed to help students who expect to do secretarial work or work in areas requiring the application of basic mathematics. Three hours each week.

107 FUNDAMENTAL CONCEPTS OF ARITHMETIC (3)

Positional and non-positional numeration systems; sets and operations on sets; properties of operations on numbers and sets; ordered pairs; rationalization of methods for addition, subtraction, multiplication, and division; power laws; prime numbers, greatest common divisor and least common multiple; point sets.

108 FUNDAMENTAL CONCEPTS OF MATHEMATICS (3)

Modular arithmetic; groups, rings and fields; formal logic applied to algebraic and geometric systems; measurement in geometry; ordered pairs and operations on sets of ordered pairs; complex numbers; coordinate systems, equations and inequalities; graphing.

109 INTRODUCTION TO STATISTICS (3)

A study of modern statistical analysis for use in business, education, social science and natural science. Elementary concepts of mathematical statistics with applications and the study of elementary probability are discussed to include frequency distribution, averages, moments, measures of dispersion, normal curve, curve fitting, regression and correlations. Prerequisite: Mathematics 101. Three hours each week.

131 ALGEBRA AND TRIGONOMETRY (4)

A mathematics course for the technology student covering the fundamental concepts of algebra, linear and quadratic equations, inequalities, systems of equations, complex numbers, logarithms, trigonometry. Prerequisite: one unit of high school algebra or its equivalent. Four hours each week.

132 ANALYTIC GEOMETRY AND CALCULUS (4)

A continuation of Math I including sequences, series, equations and graphs of the conic sections, differential calculus, integral calculus, applications in the technology fields. Prerequisites: Math 131 or Math 101 and Math 102. Four hours each week.

152 ANALYTIC GEOMETRY (4)

The study of coordinates, the straight line, locus problems, the circle and other conic sections, transformation of coordinates, parametric equations, transcendental equations, and solid analytic geometry, Prerequisite: Mathematics 101-102. Four hours each week.

203-204 CALCULUS (4-4)

This course includes a study of limits, derivatives, differentials, maxima and minima, curve tracing, curvature, integration, geometric and physical applications of integration, infinite series, approximate integration, partial derivatives, multiple integrals, and differential equations. A brief introduction to linear algebra, vectors and vector functions. Prerequisite: MATHEMATICS 202. Four hours each week.

206 DIFFERENTIAL EQUATIONS (3)

Classification of differential equations. Solutions of equations of order one. Solutions of linear equations. Differential operators. Systems of equations. Solutions of certain non-linear equations. Solutions in series. Laplace transforms. Partial differential equations.

208 LINEAR ALGEBRA

First Course in Linear Algebra.

MATHEMATICS FACULTY HAGERSTOWN JUNIOR COLLEGE

FULL-TIME

BEALL, R. HUGH
Chairman, Division of Engineering
and Mathematics
Associate Professor of Mathematics
1352 Sherman Avenue
Hagerstown, Maryland 21740

CARSON, ROBERT L.
Assistant Professor of Mathematics
21 Redwood Drive
Hagerstown, Maryland 21740

CLARK, E. WALTER
Assistant Professor Of Mathematics
CAPCO Apartments
Route 40 West
Hagerstown, Maryland 21740

SHUBERT, MARVIN L.
Instructor in Mathematics
28 East North Street
Waynesboro, Pennsylvania 17268

PART-TIME

CLARK, FRANK S.
Lecturer of Mathematics
Chestnut Grove, Keedysville, Maryland

JOHNSON, DONALD F.
Lecturer of Mathematics
38 Linden Avenue
Mercersburg, Pennsylvania 17236

HAGERSTOWN JUNIOR COLLEGE

COURSE NUMBER	NUMBER OF SECTIONS	NUMBER OF STUDENTS ENROLLED	PERSON TO BE CONTACTED	TEXT
100	4	100	Carson-Shubert	1. A First Program in Mathematics, Heywood 2. Algebra Programmed, Parts I and II, Alwin 3. Elementary Algebra Eraut 4. Intermediate Algebra, Newmyer
101	4	125	Beall, Carson	Modern College Algebra 2nd Ed. Vance
102	2	40	Beall, Shubert	Modern Trigonometry, 2nd Ed. Rutledge, Pond
103	2	40	Shubert	Foundations of Math. Bush and Young
104	-	-	Carson	Mathematics of Finance, 3rd Ed. Cissell, Cissell
105	1	30	Carson	College Mathematics, 4th Ed. Rosenberg
107	3	125	Carson, Clark	Understanding Arithmetic, Swain, Nichols
108	-	-	Clark	A Modern Introduction to Basic Mathematics, Keedy
109]	-	-	Carson	Elements of Statistics 3rd Ed. Mode
131-132	1	15	Shubert	Contemporary Technical Math with Calculus, Paul, Shaevel
152	-	-	Beall	Analytic Geometry, Hall
203-204	1	18	Clark	Calculus, 3rd Ed. Thomas
206	-	-	-	Elementary Differential Equations, Rainville
208	-	-	Clark	First course in Linear Algebra, Zelinsky

63

Comments on What Follows:

The Math 10 course referred to is taught from a different text and in a slightly different manner on each campus. However, in each case, we use a programmed text and a great deal of individual instruction.

In the Math 112-113 sequence, Dr. Good's text is used at Takoma Park and at Rockville, we use Foundations of Mathematics, by Bush and Young. The course content is essentially the same, however.

The "Review Mathematics Program" is taught on an individualized basis and has no structural outline. We are in the process of revising MA 103 and 204, and so we have no formal outline available as yet.

With regard to transferability, virtually all of our courses are transferable to neighboring universities, including the University of Maryland. Some institutions fo not accept courses such as MA 10 (remedial Algebra) or MA 107 (Business Mathematics). However, we do not see this as a problem.

64

MONTGOMERY COLLEGE

COURSE CHAIRMEN FOR DEPARTMENTS OF MATHEMATICS

Takoma Park - Rockville

COURSE	CHAIRMAN
Review Math	Mr. Schulz (R) - Miss Kuester (T.P.)
MA 10	Mr. Salins (T.P.) - Mr. Schulz (R)
MA 11	Mr. Salins (T.P.)
MA 103	Miss Kneen (R)
MA 107	Mr. Hussong (R)
MA 112-113	Mrs. Oviatt (R) - Mr. Freeman (R) Mr. Schoenfeld (T.P.)
MA 118	Mr. Matthews (R) - Mr. Dotter (T.P.)
MA 119-202-203-204	Mr. Harmon (T.P.) - Mrs. Rubenstein (R)
MA 130-131	Mr. J!nes (R)
MA 151-152-251	Mr. Wantling (R)
MA 206	Miss Kneen (R)
* 4-hour General Education Course	Mr. Harmon (T.P.) - Mr. Guyton (R)
* Calculus for Business Administration	Mr. Wantling (R)

* These courses are in the planning stage.

65

Takoma Park

The most innovative program in the Mathematics Department at Takoma Park is the teaching of 10 sections (12 students each) of MA 10 in a Math Lab. This program is completely self-paced with students required to finish 8 units before receiving a grade in the course. Students who do not finish in a semester receive a grade of X = in progress. They can re-register for the course. The text used is Salins, Ephraim, & Fleury, Russell <u>Algebra: An individualized course</u> Westinghouse Learning Press.

Takoma Park. Number of sections and approximate enrollment, Fall 1971

	# sections	enrollment
R M	2	36
10	14	177
103	1	13
107	3	71
112	9	222
113	3	61
118	4	122
119	3	68
130	1	23
151	1	25
202	3	41
203	1	22
206	1	8

ROCKVILLE CAMPUS

	# sections	enrollment		# sections	enrollment
Rev	3	32	152	2	24
10	19	457	202	4	75
103	1	28	203	2	34
107	11	246	204	1	13
112	29	660	251	1	6
113	8	172			
118	7	163			
119	7	178			
130	4	78			
131	1	22			
151	6	137			

67

Tentative Outline for Math 10.   (Evening Program - Rockville)

Text: INTRODUCTORY ALGEBRA: A COLLEGE APPROACH, 2nd edition, Eulenberg & Sunko

Course Chairman: H. Schulz

(This outline assumes 48 class sessions per semester)

Chapter

L.	Introduction-Meaning of Algebra	1	1
II.	The Set of Integers	6	7
III.	Algebraic Expressions	6	13
IV.	Sinple Equations	9	22
V.	Factoring and Solution of Quadratics	9	31
VI.	Fractions and Fractional Equations	5	36
VII.	Functional Relationships	5	41
VIII.	Starting p. 213 Exponents	4	45
Three one-hour exams		3	48

(you may be able to gain a session or two in chapter III-V, and use this in
chapters VI and VII. This outline is tentative - as your teach from this
text and have variations to suggest, PLEASE forward them to me.)

Suggested Supplement: ESSENTIAL MATHEMATICS FOR COLLEGE STUDENTS, FRANCIS J.
MUELLER

This is a workbook type text for those students who desire extra material.

MONTGOMERY COLLEGE
Rockville Campus

COURSE OUTLINE

MATH 11   Geometry

Text: Schaum's Outline Series
Plane Geometry

The purpose of this course is to acquaint the student who has never successfully completed a course in geometry with the basic principles necessary for futher progress in mathematics. In particular he must know the fundamental relationships between points and lines, congruence, similarity, angle sums, and the Pythagorean Theorem. While the student is given some exposure to the structure of a deductive system, emphasis is based on numerical or algebraic development rather than the synthetic Euclidean treatment found in lengthier high school courses. The course usually meets thiry-two 75-minute sessions in the evening.

Topic	75-minute sessions	Cumulative
1. Lines, Angles, and Triangles	2	2
2. Methods of Proof	2	4
3. Congruence	2	6
4. Parallels, Distance, and Angle sums	3	9
5. Quadrilaterals	3	12
6. Circles	3	15
7. Similarity	3	18
8. Trigonometry	2	20
9. Areas	2	22
10. Coordinate Geometry	4	26
11. Inequalities and indirect reasoning	2	28
12. Examinations and Review	4	32

69

MONTGOMERY COLLEGE

Rockville - Takoma Park

Course outline for MA 103 - Elements of Statistics

Text: Elements of Statistical Inference by David V. Huntsberger (Allyn & Bacon)

Course Chairman: Mrs. Florence Ashby Anderson (Rockville)

Chapter	Topic	Sessions	Cumulative
1.	Introduction	-	-
2.	Empircal Frequency Distributions	3	3
3.	Descriptive Measures	5	8
4.	Elementary Probability	4	12
5.	Populations, Samples, and Theoretical Distributaion	6	;8
6.	Sampling Distributions	3	21
7.	Estimation	4	25
8.	Tests of Hypotheses	4	29
9.	Two-sample Techniques and Paired Comparisons	4	33
-1.	Regression and Correlation	2 (cover as much as possible)	38
	Hourly Exams and Review	10	48

MONTGOMERY COLLEGE
Rockville Campus

MA 107 - Business Mathematics

TEXT: College Mathematics for Business, by Flora M. Locke.

Published by John Wiley and Sons, Inc., 1969.

Notes: (1) An Instructor's Manual is available.
(2) The INVENTORY TEST on page 44 (of text), or a similar test, may be used to ascertain which students have sufficient arithmetic skill to pursue the rest of the course and which would be adivsed well to divert to RPM-1 Review Math.
(3) Study material and problems for topic "Metric System" are not in text. Material for instructors will be separately provided.
(4) Study material and problems for topic "Federal Income Tax" are not in text. "Understanding Taxes", an IRS publication, is available (free) and recommended.*

COURSE OUTLINE

TEXTBOOK			SUGGESTED TIME (wks)	
Chapter	PAGES		for Topic	Cumulative
1	1 - 32	Basic Operations of Arithmetic	1-1/3	1-1/3
2	33 - 46	Percentage	2/3	2
I		Inventory Test See Note (2)	1/3	2-1/3
(Not in Text)		Metric System See Note (3)	2/3	3
3	47 - 66	Trade and Cash Discounts	1	4
4	67 - 80	Merchandising	1	5
		Test	1/3	5-1/3
6	93 - 128	Payroll	2/3	6
(Not in Text)		Federal Income Tax See Note (4)	1	7
7	129 - 140	Property and Sales Tax	2/3	7-2/3
		Test	1/3	8
5	81 - 92	Depreciation (with grapl.ing) less Declining Balance Method and Additional First-Year Depreciation	2/3	8-2/3
8	141-174	Insurance less coinsurance	1-1/3	10
9	175 - 204	Interest	1	11
12	223-238	Installment Purchases and Periodic Loan Payment Plans, less Constant ratio Formula	1	12
		Test	1	12
10	205-210	Notes	1/3	12-2/3
11	215-222	Partial Payments, less Merchant's Rule	1/3	13
13	239-250	Present Worth less True Discount	2/3	13-2/3
		Review and Test	2/3	14-1/3
15	264-291	Review	1	15
		Final Examination	1	15

*Teacher's Manual is available. Contact Rockville Dep't. Secretary.

MONTGOMERY COLLEGE
Rockville Campus

Outline for Math 112

Text: Foundations of Mathematics, by Bush & Young

1. Trigonometry (right triangle)
    Supplementary material available for Trigonometry.
    Also trig tables   3 hours

2. Sets and subsets, Chapter 1. pp. 1 - 24   3 hours

3. The Real number system, Chapter 2, pp. 25 - 52   3-4 hours

4. Relations and Functions, Chapter 3, pp. 53 - 78   6 hours

5. Systems of Linear Algebraic Equations, Chpt. 8, pp. 191 - 218
    Supplementary list of word problems available   4 -6 hours

6. Matrices and the solution of linear systems
    Chapter 9, pp. 219 - 249   9 hours

7. Inequalities and Linear Programming, Chapter 10
    pp. 251 - 276   6 hours

    Testing and Review   3 - 5 hours

     This outline is only intended as suggestions for teaching the course.
Any instructor is free to spend more or less time on a given section if he
wishes. Some instructors may want to touch only briefly or entirely eliminate
some sections of a given chapter. There is enough flexibility so that other
topics thought useful or interesting may be introduced.

MONTGOMERY COLLEGE
Rockville Campus

Outline for Math 113

Text: Foundations of Mathemetaics by Bush & Young

1. Polynomials, Chapter 12 (sections 1-3) pp. 307 - 322   2 hours

2. Ecponential Functions and Logarithms, Chapter 12 (sec. 4)
   and Appendix A, pp. 322 - 327 and 399 - 406   4 hours

3. Sequences, Chapter 4, pp. 79 - 104   6 hours

4. Permutations and Combinations, Chapter 5, pp. 105 - 120   6 hours

5. Probability, Chapter 6, pp. 121 - 148   9 hours

6. Statistical Maeasures, Chapter 7, pp. 149 - 189   12 hours

   Testing and Review   6 hours
                                                        _____

                                                                  45 hours
                                                        ----

This outline is only in the form of suggestions for teaching the course.
Any instructor is free to spend more or less time on a given sections if he wish
Also, some instructors may wish to touch only briefly on some sections or a give
chapter or perhaps skip a section entirely. There is enough flexibility so that
an instructor may introduce other topics which he may consider useful and/or
interesting to his students.

MONTGOMERY COLLEGE

Rockville Campus

REVISED COURSE OUTLINE — MATH 118. January, 1969   F. Welling

TEXT: Robison - Modern Algebra and Trigonometry.

TOPIC	CHAPTER	NUMBER OF SESSIONS	CUM
Absolute Value and Inequalities (pp. 33 - 35)	1	3	3
Functions and Graphs	3	2	5
Trigonometric Functions *	4	10	15
Polynomials (start on p. 116)	5	3	18
Exponents	6	2	20
Logarithms	7	5	25
Solutions of Triangles (if time presses, omit vectors)	8	3	28
Trigonometric Functions	9	5	32
Complex Numbers	10	3	35
Polynomial Functions	11	10	45
Inverse Trig Functions	12	3	48
Systems of Equations (emphasize matrices)	13	9	57
Sequences	14	5	62
Permutations, Combinations	15	5	67
EXAMS AND REVIEW		8	75

*Chapters 4, 8, 9, 12 may be taken in sequence by those instructors who prefer to do all the trigonometry together.

MONTGOMERY COLLEGE

Rockville – Takoma Park

Course Outline - Math 119 – Analysis I.   Chairman: H. Cheston.

Text: Calculus with Analytic Geometry, by Purcell.
        Published by Appleton-Centruy-Crofts

Chapter	Topic	Suggested # of 50-min. lecture periods	Suggested # of 50-min drills	Cumulative
1	Numbers	3	2	5
2	Cartesian Coordinates	8	4	17
3	Functions and Graphs	2	2	21
4	Limits and Continuity	5	3	29
5	The Derivative	3	2	34
6	Differentiation Formulas	5	3	42
7	Applications	8	5	55
8	Antiderivatives	2	2	59
9	The Definite Integral	7	4	70
*	Examinations and Review (10)			80

* This course should include a minimum of four (4) formal hour examinations
in addition to the final.

MATHEMATICS 131   COURSE OUTLINE

TEXT: Geometry, A Perspective View

TIME
(Weeks)

BY: Rosskopf, Levine and Vogeli

CHAPTER I
    Fine for review of sets and mathematical systems.   1

    Good introduction to proofs

CHAPTER II   1

    The logic here is interesting, but not essential to later
    development

Sect. 6: This is the strong point of the chapter. Discuss all
    exercises. You might find it profitable to analyze the proofs
    presented in Chapter I in terms of the inference schemes presented
    here.
CHAPTER III   1-2

    Here is an opportunity to apply the principles of Ch. II

· Analyze the proofs given in the text to see how each demonstrates the
principles of Sect. VI of Ch. II. Help students to see how one
constructs a proof.

Assign and discuss all exercises.

Exercises on P. 47 give the students their first opportunity to
construct proofs. Supplementary proofs from Schaum or Garstens
and Jackson are helpful for practice.

Section VIII
    It is helpful to discuss space using only sets (without pictures)
to avoid assuming properties of betweeness and straightness of lines.

CHAPTER IV   2

    Notation under the definition of inverses is not good.

Section 3 Review Equivalence relations.

Section 4 Spend a few days working with inequalities. They will be
    teaching these concepts.

Section 7: Development of measure is skimpy but acceptable by students

Section 8: Develop absolute value more completely.

CHAPTER V (Optional)

CHAPTER VI   1

Exercise set 6.2, answer to problem 1(b) is not correct.

Section 6. Discussion in the book is not clear for students.
    (optional)

Theorems 6-5, 6-6, 6-7 are good exercises for students to prove their
    own.

Exercise 2 p. 105 is not good becuase an angle cannot have a measure
    of zero.

Exercise 6 p. 102 answer to part a) is not correct.

Chapter VII   1

Definition P. 108 needs improving. Same for definition of polygon
    p. 109. Most books define polygons int terms of simple closed
    curves.   Area selection optional.

CHAPTER VIII   2

    This chapter presents an excellent opportunity for students to
develop proofs for themselves. It is also helpful to permit the
students to present the proofs to the class and explain how they
developed it.

Section 4. Here is a good place to introduce rigid motions and
    assign readings in Ch. Xiii.

    Additional proofs and exercises are in Schaum Outline.

Chapter IX   2

Definition page 135. It is good to emphasize that a line is
parallel to itself.

More opportunities for students to develop proofs.

Chapter X   1

It seems to be more profitable to introduce concepts of trigonometry
rather than spend time on the development of pythagoresn triplets.

Chapter II   1

Chapter IIII   1-2

    This is your opportunity to "wrap it up". In this chapter there is
material for demonstrating the unified nature of mathematics, that is that
geometry and algebia are not two completely different subjects, but two
ways of looking at the same thing!!

MONTGOMERY COLLEGE
Rockville Campus

Course Outline: Technical Math MA 151   Course Chairman: K. D. Wantling

Text: Basic Technical Mathematics with Calculus, 2nd Edition, by Allyn J. Washington, Published by Cummings Publishing Company

INTRODUCTION

1. Number Systems and Arithmetic and Algebraic Operations   Ch. I.

2. Units and Dimensional Analysis   Appendix B.
    Significant Figures

3. Functions and Graphing Techniques   Ch. II.

4. The Trigonometric Functions   Ch. III.

5. Trig. Functions of any Angle or Number   Ch. VII.

6. Vectors and Oblique Triangles   Ch. VIII.

7. Graphs of the Trigonometric Functions   Ch. IX.

8. Systems of Linear Equations   Ch. IV.

9. Factroring and Fractions   Ch. V.

10. Quadratic Equations   Ch. VI.

11. Exponents and Radicals   Ch. X.

12. The j-operator   Ch. XI.

13. Logarithms   Ch. XII.

14. Additional types of equations and systems of equations   Ch. XIII.

75 days per semester   4 exams
                                              6 review days

MONTGOMERY COLLEGE
Rockville Campus

MA 152 Course Outline - Technical Mathematics, II

Text: <u>Basic Technical Mathematics with Calculus</u>, 2nd edition, by Allyn J. Washington; Published by Cummings Publishing Company.

1.	Equations of Higher order	Ch. 14
2.	Determinants and Matrices	Ch. 15
3.	Inequalities	Ch. 16
4.	Variation	Ch. 17
5.	Additional Topics in Trigonometry	Ch. 19
6.	Plane Analytic Geometry	Ch. 20
7.	Introduction to Statics	Ch. 21
8.	The Derivative	Ch. 22
9.	Applications of the Derivative	Ch. 23
10.	Integration	Ch. 24
11.	Applications of integration	Ch. 25.1 25.2 25.3

OPTIONAL MATERIAL

1. Progressions   Ch. 18

75 days per semester   4 exams
                                        6 review days

MONTGOMERY COLLEGE
Rockville - Takoma Park

Outline for MA 202: Analysis II

Text: Calculus with Analytic Geometry, by Purcell.

Chapter and Topic	Number of 50-min. sessions (lec. or Lab)	Cumulative
10. Applications of Definite Integrals	15	15
11. Conics	15	30
12. Transcendental Functions	10	40
13. Technique of Integration	15	55
14. Polar Coordinates	10	65
16. Improper Integrals Indeterminate Forms	5	70
Examinations and their review	10	80

IMPORTANT NOTES:

1. A semester that includes 16 weeks of instruciton is assumed.

2. There should be a minimum of four (4) formal hour examinations in addition to the 2-¹ our final.

3. The work with hyperbolic functions (Chapter 12) is optional, but recommended.

4. The subject matter taken up in Chapter 15 will be included in MA 203: Analysis III.

MONTGOMERY COLLEGE
Rockville - Takima Park

Math 203 - Analysis III

Text: Calculus with Analytic Geometry, By Purcell;
      Published by Appleton- Century - Crofts.

Chapter	Topic	Number of 50-min. lecture periods	Cumulative Total
15.	Parametric Equations; Plane Vectors	10	10
17.	Analytic Geometry of 3-space	10	25
18.	Vectors in 3-space	10	35
19.	Partial Differentiation	10	45
20.	Multiple Integrals	10	55
21.	Infinite Series	15	70
	Examination s and Review	10	80

MONTGOMERY COLLEGE
Department of Mathematics

Math 206, Differential Equations   Course Outline

Text: Boyce and DiPrima, <u>Elementary Differential Equations and Boundry Value Problems</u>, 2nd edition, John Wiley and Sons, Inc.

Chapter and Sections	Topic	Number of Lessons
1.1 - 1.2	Introduction	1
2.1 - 2.10	First order equations	8
3.1 -3.7.1	Second order linear equations	9
4.1 - 4.5,1	Series solutions of second order linear equations	6
6.1 - 6.5	The Laplace transform	7
7.1 - 7.5	Systems of first order equations	5
8.1 - 8.5	Numerical methods	6
		Total 42

The remaining three lessons will be taken up by hour exams.

MONTGOMERY COLLEGE
Rockville Campus

MA 251 Course Outline - Technical Mathematics, III.

Text: <u>Basic Technical Mathematics with Calculus</u>, 2nd edition, by Allyn J.
Washington.   Published by Cummings Publishing Company.

1. Centroids   Ch. 25, P. 567

2. Moments of Inerita   Ch. 25, P. 574

3. Other Applications   Ch. 25, P. 579

4. Misce-laneous Exercises   Ch. 25, P. 583

5. Differentiation of Transcendental Functions   Ch. 26, p. 585

6. Methods of Integration (emphasize use of tables)   Ch. 27, P. 609

7. Multiple Integration (areas and volumes by double and triple
    integration. Not in the book, and will have to be supplemented
    by individual instructor.)

8. Expansion of Functions in Series   Ch. 28, P. 636

9. Differential Equations through 29-5 (the rest of the chapter as it
    applies to the strdents in the class.)

    This course can be varied as it applies to the individual class and
the students' majors; that is, certain topics will demand more time and
others less, depending on the direction of the majority of students.

MONTGOMERY COLLEGE
Rockville Campus

Department of Mathematics

Full and part-time instructors - 1972

Full-time:
Name   Rank

Mr. William M. Swyter, Chairman   Professor
Mr. Charles T. Barnhill   Instructor
Mr. Daniel D. Benice   Assistant Professor
Mr. Allen W. Emerson   Instructor
Mr. Sennis B. Freeman   Instructor
Mr. Gordon L. Gregg   Assistant Professor
Mr. Garland S. Guyton   Instructor
Dr. Wilbur J. Hildebrand   Lecturer
Mr. William J. Hussong   Professor
Dr. Rufus C. Jones   Assistant Professor
Mr. Helmer G. Junghans   Assistant Professor
Miss Judith F. Kneen   Associate Professor
Mr. Carroll L. Matthews   Assistant Professor
Mr. Michael R. Menaker   Instructor
Mrs. Carla B. Oviatt   Associate Professor
Mrs. Patricia D. Roecklein   Instructor
Mrs. Patricia H. Rubenstein   Assistant Professor
Mr. Henry F. Schulz   Professor
Mrs. Zdanna K. Skalsky   Instructor
Mr. Kenneth D. Wantling   Assistant Professor
Dr. Leben Wee   Assistant Professor
Mrs. Florence Welling   Assistant Professor
Mr. Kenneth S. Weiner   Instructor

Part-time:

Mr. Bruce Benson   Lecturer
Mr. E. Earl Bryant   Lecturer
Mr. Edwin H. Davidson   Adjunct Professor
Dr. Rex Depew   Lecturer
Mr. Charles R. Domeck   Lecturer
Mr. Herbert T. Fichman   Lecturer
Mrs. Rosemary H. Kahng   Lecturer
Mr. John Miklos   Lecturer
Mr. William Nischan   Lecturer
Mr. Alfred J. Rizzo   Lecturer
Mr. Denwood F. Ross   Lecturer
Mr. Sidney Spindel   Adjunct Professor
Dr. Robert O. Stone   Lecturer
Mr. Guy P. Vuotto   Lecturer
Mr. William H. Wertman   Lecturer
Mr. Rinnie J. Wince   Lecturer

Name and Rank of each mathematics instructor: Takoma Park

Full-time:

Margaret G. Aldrich	Professor
Wilbur N. Dotter	Instructor
Jack L. Harmon	Asst. Prof.
Sharon B. Kuester	Instructor
Ephraim G. Salins	Assoc. Prof.
Jon W. Scott	Instructor
Peter S. Shoenfeld	Asst. Prof.

Part-time:

Catherinee B. Cant	Lecturer
Paul E. Clark	Adjunct Prof.
Robert F. Davis	Adjunct Prof.
Robert W. Glenn	Lecturer
Bruce E. Hartley	Lecturer
Evelyn Howard	Lecturer
Milton W. Kalet	Lecturer
Charles Katz	Adjunct Prof.
Robert J. Miller	Adjunct Prof.
Gerald P. O'Shaughnessy	Lecturer
Russell V. Person	Lecturer
Linda Ann Plastas	Lecturer
Nathan Rubenstein	Adjunct Prof.
Elizabeth J. Teles	Lecturer
Alvin J. Temin	Adjunct Prof.

MATH 001. DEVELOPMENTAL MATHEMATICS. No Credit

Basic concepts of elementary algebra with review of arithmetic if
needed. The student progresses at his own speed. If in one semester he
does not complete the minimum work required, to pass the course he will
have to re-enroll in a subsequent semester. Three hours, considered
equivalent to three semester hours for academic load and tuition purposes.

MATH 002. INTERMEDIATE ALGEBRA. No credit

A continuation of the method and content of MATH 001, including such
topics as absolute value, exponents, and radicals. Three hours considered
equivalent to three semester hours for academic load and tuition purposes.
Prerequisite: MATH 001 or SAT Math score of 350 or higher.

MATH 103. FUNDAMENTALS OF MATHEMATICS. 4 credit hours

An introduction to the various branches of mathematics within the
historical framework of their origin. Such topics as sets, numeral systems,
logic, geometry, modular arithmetic, algebra, and modern mathematical systems
are explored from the standpoint of their development and impact on modern
living. Does not fulfill the mathematics requirement for elementary education
majors. Prerequisite, MATH 001 or SAT Math score of 350 or higher.

MATH 105. ELEMENTS OF MATHEMATICS. 4 credit hours

Introduction of sets, systems of numeration, development of the system
of whole numbers, of integers, of rational numbers, and of real numbers;
elementary number theory, modular arithmetic; mathematical systems; groups;
fields; logic and truth tables. Required of all elementary education majors.
Prerequisite: MATH 001 or SAT Math score of 350 or higher.

MATH 106. ELEMENTS OF GEOMETRY. 4 credit hours

Geometry as a logical system based upon postulates and undefined terms;
the nature of proof, congruence of triangles, inequalities; quadrilaterals
and parallelograms; areas of polygonal and circular regions, proportion and
similarity; circles; geometric constructions. Recommended for elementary
education majors. Required of elementary education majors transferring to
the University of Maryland. Prerequisite: Same as MATH 105. It is permitted
to take 106 before or concurrently with 105.

MATH 109. FINITE MATHEMATICS I. 3 credit hours

This first semester course of a two-semester sequence is designed for
students having a workable knowledge of algebra through quadratics. It is
designed for majors in business administration and data processing, and in
the biological, social and behavioral sciences. Topics include mathematical
systems, real numbers, matrices; linear equations, and inequalities; linear
programming, elementary function theory. Prerequisites: MATH 002 or SAT
Math score of 450 or higher.

MATH 110. FINITE MATHEMATICS II. 3 credit hours

A continuation of MATH 109, including set theory, Venn diagrams, permuta-
tions, combinations, binomial expansion, probability and elementary statistics.
Prerequisite. MATH 109.

86

MATH 117. FRESHMAN MATHEMATICS I. 3 credit hours

The first course of a two-semester sequence. Sets and logic; concept of function; polynomials of one variable; rational functions; trigonometric functions and identitites; exponential and logarithmic functions. Prerequisite: MATH 002 or SAT Math score of 450 or higher.

MATH 118. FRESHMAN MATHEMATICS II. 3 credit hours

A continuation of MATH 117. Arithmetic and geometric sequences; mathematical induction; binomial theorem; binomial probability distribution; probability; vectors; inequalities, linear systems; matrices and determinants; conic sections, functions of two variables; three dimensional coordinate systems. Prerequisite: Previous or concurrent enrollment in MATH 117 or written permission of the Chairman of the Department of Mathematics and Engineering.

MATH 151. BUSINESS MATHEMATICS I. 3 credit hours

Mechanics of improved computation; percents; merchandising; simple interest; notes and drafts; financial accounts; partial payments; income tax. Prerequisite: MATH 001 or SAT Math score of 350 or higher.

MATH 152. BUSINESS MATHEMATICS II. 3 credit hours

A continuation of MATH 151. Elements of insurance; depreciation; dividends; stocks, bonds; compound interest; debt repayment; purchasing and credit. Prerequisite: MATH 151.

MATH 161. TECHNICAL MATHEMATICS I. 3 credit hours

Review of arithmetic, geometry, and algebra to include linear equations, graphs, quadratics, linear and quadratic systems, exponents and radicals, rates and proportion, determinants, complex numbers, logarithms, applications to technologies. Introduction to the slide rule. Three hours lecture. Prerequisite: MATH 001 or SAT Math score of 350 or higher.

MATH 162. TECHNICAL MATHEMATICS II. 3 credit hours

Trigonometric functions; vectors; triangles; inverse trigonometric functions; formulae and identities; graphs and equations; complex numbers; applications to technologies. Three hours lecture. Prerequisite: MATH 161.

MATH 201. ANALYSIS I. 4 credit hours

Conics; translation of coordinate axes; functions and their graphs; limits; continuity; the derivative and applications of the derivative; antiderivatives; definite integral. Prerequisite: SAT Math score of 550 or higher, or MATH 118, or written permission of the Chairman of the Department of Mathematics.

MATH 202. ANALYSIS II. 4 credit hours

Techniques of integration; applications of integration; polar coordinates; basic properties of elementary functions; improper integrals; indeterminate forms; sequences and series. Prerequisite: MATH 201.

MATH 204. ANALYSIS III. (Linear Algebra) 4 credit hours

Basic concepts of linear algebra, vector spaces; application to line and plane geometry; linear equations and matrices; linear transformations, eigenvalues, determinants and quadratic forms. Prerequisite: MATH 202.

MATH 206. ANALYSIS IV. 4 credit hours
    Calculus of functions of vectors; partial derivatives; multiple
integration; surface integrals; classical theorems of Green, Gauss and Stokes.
Prerequisite: MATH 204.

MATH 210. INTRODUCTION TO PROBABILITY AND STATISTICS. 3 credit hours
    The algebra of sets; permutations and combinations; elementary
probability; the binominal distribution; normal distribution; random
hypothesis testing; non-parametric statistics; regression and correlation;
time series, introduction to computer techniques. Prerequisite: MATH 118,
completed or concurrent.

MATH 212. DIFFERENTIAL EQUATIONS. 3 credit hours
    Linear differential equations with constant and variable coefficients;
solution of Boundary-Value problems, numerical methods; introduction to non-
linear equations. Prerequisite: MATH 202.

MATH 261. TECHNICAL MATHEMATICS III. 3 credit hours
    Elements of analytic geometry to include line, point, plane, space,
conic sections, polar coordinates; differential and integral calculus to
include exponential and transcendental functions, Fourier series, La Place
transforms, applications. Three hours lecture. Prerequisite: MATH 162.

ENGINEERING (ENGR)

ENGR 101. ENGINEERING GRAPHICS 3 credit hours
    Elements of graphic communication and analysis, descriptive geometry,
orthographic projection, auxiliary views, technical sketching and lettering.
Simplified conventions. Two hours lecture, three hours laboratory. Pre-
requisites: MATH 118, completed or concurrent.

ENGR 102. INTRODUCTORY MECHANICS. 3 credit hours
    Free-body diagrams, numerical, graphical, and vectorial computation
applied to elementary problems in statics, areas, volumes, static moments,
moment of inertia, centroids, radii of gyration, and an introduction to shear
and moment diagrams. Three hours lecture. Prerequisites: MATH 201, completed
or concurrent, and ENGR 101.

ENGR 201. DYNAMICS. 3 credit hours
    The application to elementary engineering problems of the dynamics of
particles and rigid bodies, the principle of work and energy, impulse and
momentum, and mechanical vibrations. Prerequisites: MATH 202, PHYS 201,
completed or concurrent, and ENGR 102.

ENGR 202. MECHANICS OF MATERIALS. 3 credit hours
    Distortion of engineering materials in relation to changes in stress and
temperature. Geometry of internal strain and external displacement. Elemen-
tary application to beams, columns, shafts, tanks, trusses, and connections.
Prerequisites: MATH 204, PHYS 201, completed or concurrent, and ENGR 102.

ENGR 203. CIRCUIT ANALYSIS. 5 credit hours
    Introduction to circuit theory, Ohm's law, Kirchoff's laws, basic circuit
analysis techniques, energy storage, power, elementary transients by classical
transform methods, sinusoidal analysis, introduction to complex frequency,
laboratory exercises in electrical components and basic test equipment, princi-
ples of measurement and data handling, circuit behavior with variation in com-
ponent valves. Four hours lecture, two hours lab. Prerequisites; MATH 204,
PHYS 202, both completed or concurrent. Laboratory fee: $5.00.

PRINCE GEORGE'S COMMUNITY COLLEGE

Note: Enrollment data given for spring, 1972

Course number	Person to be contacted	Number of sections	Total number of students	Non-textual materials and Innovative teaching methods	Unsolved problems
001	Mr. John Seaton	17	376	programmed texts only; auto-tutor machines; some tapes for tape recorders; individualized placement; student aides for record keeping; special TP grade, equivalent to W, for students requiring more than one semester	perhaps not all students best served by programmed materials; too many students do not complete the work in one semester; presently considering merging 001-002; reconsidering level of accomplishment needed as prerequisite to other courses;
002	Mr. John Seaton	6	95	as in 001	
103	Mrs. Barbara Gale	8	194	overhead projector, posters, movies	mastery of the subject matter within the allotted time; availability of good audio-visual aids in related subjects; and, of course, logical vs cultural vs other approaches
105	Miss Bea Barnes	3	72	extensive use of THE ARITHMETIC TEACHER (NCTM); examination of numerous new elementary school textbooks	lack of pertinent movies
106	Miss Bea Barnes	2	34	as in 105	
109	Miss Emily Bronstein	10	297	comparison of traditional vs programmed texts; one instructor introduced a canned computer program on determinants	relationship of algebra-analytics to prob-stat

Course number	Person to be contacted	Number of sections	Total number of students	Non-textual materials and innovative teaching methods	Unsolved problems
110	Miss Emily Bronstein	10	271	preparing to introduce calculators	as in 109
117	Mrs. Maudena Heitman	6	135	Integration of various topics; placement of students who want both courses at same time	
118	Mrs. Joyce Bohn	6	106		
151	Mrs. laudena Heitman	5	191	"Teaching Taxes" pamphlet published by IRS, used and kept by students	keeping up to date with correct procedures and changes such as new loan procedures
152	Mr. George Philbrick	6	45	as in 151	as in 151
161	Mr. George Philbrick	2	97	demonstration slide rule; extensive handouts on applications, since whole approach is problem solving	how to cover adequate theoretical math while being realistic about what students can achieve
162	Mr. John Fletcher	3	65	as in 161	as in 151
201	Mr. Williston Hobbs	3	59	opaque transparencies; preparing to introduce computer and calculators; one instructor has tried contract teaching	ordering the sequence of topics to develop skills early for other subjects (e.g. physics and Engr.) without being superficial and non-rigorous

Course number	Person to be contacted	Number of sections	Total number of students	Non-textual materials and innovative teaching methods	Unsolved problems
202	Mr. Williston Hobbs	3	41		
204	Mr. Williston Hobbs	1	18	as in 201	how to avoid linear algebra being merely an interruption of the classical sequence
206	Mr. Williston Hobbs	1	10		
210	Mr. Williston Hobbs	1	11		determining realistic prerequisites to accomodate more students; avoiding a split regarding transferability to meet the needs of both a cookbook approach and a post-calculus treatment
212	Mr. Peter Arbach	1	14	calculators	

Courses at Prince George's Community College		Equivalent courses at the University of Maryland
Math 001	Developmental Mathematics	No equivalent - Not Transferable
Math 002	Intermediate Algebra	No equivalent - Not Transferable
Math 103	Fundamentals of Mathematics	Math 105
Math 105	Elements of Mathematics	Math 210
Math 106	Elements of Geometry	Math 211
Math 109	Introduction to Finite Math I	* Math 110, 111
Math 110	Introduction to Finite Math II	
Math 117	Freshman Math I	
Math 118	Freshman Math II **	Elective Math (lower level)
Math 151	Business Math I	No equivalent - Not transferable
Math 152	Business Math II	No equivalent - Not transferable
Math 161	Technical Mathematics I	No equivalent - Not transferable
Math 162	Technical Mathematics II	No equivalent - Not transferable
Math 201	Calculus I	Math 140
Math 202	Calculus II	
Math 204	Calculus III	Math 141, 240, 241
Math 206	Calculus IV	
Math 261	Technical Mathematics III	No equivalent - Transferable as 3 credits elective math (lower level) for students without credit in a calculus sequence.
Math 210	Intro.to Probability & Stat.	To be evaluated
Math 212	Differential Equations	Math 246

*After February 1970 Math 109 is transferable as elective math (lower level) and may be used in fulfillment of the General Education Requirement, but may not be used as a prerequisite for Math 111. Students at the University of Maryland will not be given advanced permission to take Math 109 but may be given permission to take Math 110 if they already have credit for Math 109 at the time the request is made.

**Students at the University of Maryland will not be given permission in advance to take Math 117 at Prince George's but may be given permission to take Math 118, if they already have credit for Math 117 at the time the request is made. Students with credit from Prince George's in Math 117 or Math 118 or both may not take Math 110 or Math 115 at the University of Maryland for credit. A student with credit in both Math 117 and Math 118 at Prince George's may take Math 111, 220, or 140 at the University of Maryland for credit.

PRINCE GEORGE'S COMMUNITY COLLEGE

MATH AND ENGINEERING FACULTY:

FULL-TIME

Arbach, Peter J., (1970) Assistant Professor
Baldwin, Eldon C., (1971) Instructor
Barnes, Beatrice V., (1967) Associate Professor
Bohn, Joyce F., (1968) Assistant Professor
Bronstein, Emily S., (1967) Assistant Professor
Buttram, Mary Lou, (1968) Instructor
Erdeky, Joseph, (1969) Assistant Professor
Fletcher, John M., (1969) Assistant Professor
Gale, Barbara R., (1969) Professor
Heitman, Maudena L., (1967) Associate Professor
Higgins, Virginia C., (1967) Associate Professor
Hobbs, Williston C., (1965) Professor
Keyes, Charles M., (1968) Associate Professor
Malie, Paul J., (1965) Associate Professor
Philbrick, George A., (1967) Associate Professor
Phillips, Harry E., (1968) Assistant Professor
Pohl, Amelia E., (1969) Associate Professor
Rushton, J. Franklin, (1968) Assistant Professor
Russell, David, (1967) Professor
Seaton, John A., (1968) Assistant Professor
Sereno, Edgel E., (1969) Associate Professor
Sliker, Roland E., (1966) Associate Professor
Strong, David H., (1969) Associate Professor
Thomas, John E., Jr., (1966) Professor
Thompson, Jennie S., (1968) Assistant Professor

PART-TIME

Byers, James L., (1969) Lecturer-Engineering
On, Frank (1964) Lecturer-Engineering
Sutphin, Robert C., (1963) Lecturer-Engineering

PART. III

CONSTITUTION AND BY-LAWS OF THE MATHEMATICS DIVISION OF
THE MARYLAND ASSOCIATION OF JUNIOR COLLEGES

THE AGENDAS OF THE FOUR MEETINGS, 1972-72

THE MEMBERSHIP AND MAILING LIST

CONSTITUTION

The Mathematics Division
of the
Maryland Association of Junior Colleges

(Adopted October 20, 1967)

ARTICLE I - Name

The name of this organization shall be the Mathematics Division of the
Maryland Association of Junior Colleges.

ARTICLE II - Purpose

The purpose of the Mathematics Division is to facilitate the exchange of
ideas among mathematics teachers in the two-year colleges throughout the
state; to share the common problems (and solutions) unique to the teachers
in the two-year colleges, including articulation with institutions pre-
paring or receiving our students, and to foster interests in mathematics.

ARTICLE III - Membership

The membership of the Mathematics Division shall be open to teachers of
mathematics on the college level and to all other persons who have an
interest in mathematics.

ARTICLE IV - Officers*

The officers shall be:

  President
  Vice-President
  Secretary-Treasurer

Except as noted below, officers shall be elected by ballot at the annual
meeting and take office immediately after said meeting. The term of office
shall be one year. The office of president shall not be held for more than
two full consecutive terms by the same individual.

Initial officers shall be elected at the meeting at which this constitution
is adopted. Their term of office shall expire at the close of the first
annual meeting of the Division.

ARTICLE V - Executive Committee

The Executive Committee, composed of the three officers, shall have charge
of arrangements for the meetings of the Mathematics Division, including time,
place, and program. The committee shall have charge of all business which
has not been provided for by other means. The committee may, however, be
instructed by vote of the Mathematics Division.

95

ARTICLE VI - Duties of Officers

In addition to the usual duties of office, the special duties and responsibilities of the officers are enumerated below:

President:
: To provide leadership in the planning of the Mathematics Division.
To appoint a nominating committee.
To promote the interests of the Mathematics Division.
To represent the Mathematics Division at the meetings of the MAJC Representative Council.

Vice-President:
: To assume any responsibilities given to him by the president.

Secretary-
Treasurer:
: To record minutes of the Division meetings and executive committee meetings.
To handle correspondence for the Mathematics Division.
To handle any financial transactions of the Mathematics Division.

ARTICLE VII - Amendments

The constitution may be amended by a two-thirds vote of the members present at any of the meetings of the Mathematics Division. Written notice of the proposed amendment must have been sent to members by the secretary at least three weeks prior to the meeting at which it is to be voted upon. Such proposed amendment shall be received by the secretary no later than four weeks before the meeting for voting.

ARTICLE VIII - Meeting

The Mathematics Division shall hold at least two meetings a year. The spring meeting shall be the annual meeting of the Mathematics Division.

BY-LAWS

I. All special committees shall be appointed by the president, unless the contrary is expressly ordered by the Mathematics Division.

II. At the annual meeting, prior to the nomination of officers, the treasurer shall submit to the membership a written report showing the financial transactions of the organization. The books of the Division shall be audited before each annual meeting.

BY-LAWS (Cont'd)

III. A majority of members shall constitute a quorum for the transaction of business; provided that whenever and so long as the membership exceeds one hundred, fifty-one shall constitute a quorum.

IV. The membership roster will be composed of the names of persons completing application for membership for the current year. Said application will be filed with the treasurer at any time. Membership is good from time of acceptance of application until June 30. Applications for the following year (beginning July 1) may be submitted at the annual meeting.

V. All questions of parliamentary usage and points of order not determined by the Constitution and By-Laws of the Mathematics Division, shall be decided by Robert's Rules of Order, latest revised edition.

97

ARTICLE IV - Officers

The officers shall be:

President

Vice-President

Secretary-Treasurer

Officers to be elected shall be elected by ballot at the annual
meeting and take office immediately after said meeting. The term of
office shall be one year for Vice-President and Secretary-Treasurer,
and two years for President. An individual may not serve consecutive
terms in the office of President.

THE AGENDAS OF THE FOUR MEETINGS OF
THE MATHEMATICS DIVISION OF
THE MARYLAND ASSOCIATION OF JUNIOR COLLEGES
1972-73

October 22, 1971   Prince George's Community College

December 7, 1971   Takoma Park Campus, Montgomery College

February 11, 1972   Essex Community College

April 21, 1972   The Hunt Valley Inn

FRIDAY, OCTOBER 22, 1971

PRINCE GEORGE'S COMMUNITY COLLEGE

Room: Bladen 114

2:30 p.m.   Koffee, Kakes and Konversation

2:45 p.m.   Opening Session: Tours

    Tour 1:   developmental mathematics facility
    Tour 2:   auto-tutorial facility (including various
            mathematical programs)
    Tour 3:   computer facility

3:45 p.m.   Second session:

1.   Welcome: Dr. Harvey, President, PGCC
2.   Address: Dr. Pindell, Executive Secretary, MAJC
3.   Articulation problems with the University of
     Maryland: Mrs. Sorenson, University of Maryland
     Math Department
4.   A comparison of traditional and programmed methods:
     Dr. David Conroy, Northern Virginia Community
     College
5.   Statewide innovative programs:
    a.   The in-service computer course for staff
       members at PGCC: Professor Arbach
    b.   Others as volunteered from the floor
6.   MATYC: Professor Frank Green
7.   Discussion: a professional mathematics organization
     for statewide activity:
       a.   MAJC?   Other organizations?   A new organization?
          None?
       b.   Previously planned programs
       c.   More Programs?
       d.   The printed math study
8.   Business meeting
9.   Adjournment

TUESDAY, DECEMBER 7, 1971

Mathematics Laboratory, Technical Building
Takoma Park Campus
Montgomery College

2:30 p.m. Coffee, conversation, and tour of the
mathematics laboratory

3:00 p.m. Call to order: Mr. Russell, President
Mathematics Division, MAJC

1. Welcome: Mrs. Aldridge, Chairman
Mathematics Department
Takoma Park Campus
Montgomery College

2. Announcements: Mr. Russell

3. Articulation with Bowie State College:

Dr. M. Bhatia, Associate Professor
of Mathematics, Bowie State College

4. Individualized instruction:

Mr. Robert Hackworth, Clearwater
Campus, St. Petersburg Junior College

5. Business Meeting

6. Adjournment: (5:00 p.m. exactly)

FRIDAY, FEBRUARY 11, 1972

Essex Community College

2:30 Coffee: Lecture Hall, Instruction and
      Administration Building

3:00 - 5:00   I. Welcome

          II. Announcements

         III. Tours
               i) Computer
              ii) Math Lab; Audio-Visual Department

          IV. The Use of the Computer in Elementary
                 Science Courses
                 (Phil Sticha, Essex Community College)

           V. Some statistics on the developmental
               math program at Essex Community College
               (Jerry Bloomberg, Essex Community College)

          VI. A workshop in tutoring for elementary
                 education majors (Bill Steger, Essex
               Community College)

         VII. An evaluation procedure for mathematics
                 faculty
               (Bill Beck, Essex Community College)

        VIII. The Mathematics Association of Two Year
                 Colleges
               (Frank Avenoso and George Miller, Nassau
                Community College)

102

FRIDAY, APRIL 21, 1972

THE HUNT VALLEY INN

1. Distribution of the annual newsletter

2. Treasurer's report (Maudena Heitman, Prince George's
   Community College)

3. Dues structure for 1972-3, including affiliation with
   MATYC

4. A workshop in tutoring elementary education majors
   (Bill Steger, Essex Community College)

5. An evaluation procedure for mathematics faculty
   (Bill Beck, Essex Community College)

6. Election of officers for 1972-73

7. Adjournment: 6:00 p.m.

THE MEMBERSHIP OF THE MATHEMATICS DIVISION OF THE MARYLAND ASSOCIATION
OF JUNIOR COLLEGES

as formerly reported to The Mathematics Division up to April 1, 1972.

Baghasarian, Vartenik, Harford Community College
Barnes, Beatrice, Prince George's Community College
Bohn, Joyce, Prince George's Community College
Bosman, Edward E., Allegany Community College
Branum, Barbara, Allegany Community College
Bronson, Patricia P., Chesapeake College
Brown, Donald M., Allegany Community College
Bulleri, Andrew A., Howard Community College
Carson, Robert L., Hagerstown Junior College
Clark, E. Walter, Hagerstown Junior College
Davis, C. S., Anne Arundel Community College
Devaney, Martha P., Anne Arundel Community College
Dreisch, Norman, Essex Community College
Ellis, Norman E., Essex Community College
Epley, Dennis C., Community College of Baltimore
Failla, Michael, J., Harford Community College
Furno, Imngene P., Community College of Baltimore
Greene, Francis A., Essex Community College
Greger, Robert J., Harford Community College
Groat, Jr., J., Frank, Essex Community College
Heitman, Maudena L., Prince George's Community College
Higgins, Virginia, Prince George's Community College
Hill, Joyce, Essex Community College
Hobbs, Williston, Prince George's Community College
Housum, Wayne, Harford Community College
Kahn, Steven, Anne Arundel Community College
Lamb, William E., Anne Arundel Community College
Little, Joyce C., Community College of Baltimore
Morgan, Virginia D., Charles County Community College
Ludrich, Alfred, Allegany Community College
Myers, Jesse A., Catonsville Community College
Ricciardi, Sue A., Anne Arundel Community College
Rushton, Frank, Prince George's Community College
Edwards, John P., Jr., Anne Arundel Community College
Russell, David, Prince George's Community College
Sagan, Leon F., Anne Arundel Commuuity College
Seaton, John, Prince George's Community College
Sheely, William L., Harford Community College
Sinniger, Lira, Anne Arundel Community College
Snyder, Joseph, Anne Arundel Community College
Stubblefield, L.A., Community College of Baltimore
Sussmann, Wm. A., Frederick Community College
Sylvester, Harold, Howard Community College
Thompson, Jennie, Prince George's Community College
Townsend, Beulah, Community College of Baltimore
Wisthoff, John L., Anne Arundel Community College
Zalonis, Elaine, Anne Arundel Community College
Zimmerman, Maud, Community College of Baltimore

Additional persons on the mailing list of MAJC-MATH, 1971-72:

Aldrich, Margaret, Montgomery College (Takoma)
Arbach, Peter J., Prince George's Community College
Avenoso, Frank, Nassau Community College (New York)
Baldwin, Eldon, Prince George's Community College
Beck, J. William, Essex Community College
Berg, Ken, University of Maryland
Bhatia, M., Bowie State College
Bourn, Ken, Essex Community College
Brillhart, Sandra E., Anne Arundel Community College
Chesley, Daniel S., Anne Arundel Community College
Conroy, D. E., Northern Virginia Community College
Crawley, Vernon O., Dundalk Community College
Dean, Richard D., Community College of Baltimore
Ehler, C. W., Anne Arundel Community College
Erdeky, Joseph, Prince George's Community College
Evans, William, Anne Arundel Community College
Gale, Barbara, Prince George's Community College
Hackworth, Robert, St. Petersburg Junior College (Florida)
Heffelfinger, H. Joseph, Anne Arundel Community College
Hopkins, Belva H., P. G. Board of Education
Miller, George, Nassau Community College (New York)
Pindell, Watson, Executive Secretary MAJC
Salins, Eph, Montgomery College (Takoma)
Schultz, Hank, Montgomery College (Rockville)
Skane, Donna, Catonsville Community College
Sorenson, Shirley, Math Department, University of Maryland
Sturm, R. R., Chesapeake College
Swyter, William, (Rockville) Montgomery College
Van Velsir, G. L., Anne Arundel Community College
Wantling, Kenneth D., Montgomery College
Weber, Walt, Catonsville Community College
Zeidman, Edward A., Essex Community College

The Chairman of the Mathematics Department of each
Junior College in The State of Maryland.

105