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ABSTRACT

For this survey of collegiate programs preparing students for certification as secondary school mathematics teachers, questionnaires were sent to the 53 Illinois institutions listed as having approved programs. Responses were received from 28 schools. The questionnaire was designed to yield information concerning criteria for admission to, and graduation in the programs; requirements and options in mathematics and mathematics education course work, field experience, and student teaching; and the responsibilities of mathematics and mathematics education faculty. The schools responding to the survey were quite varied in size, and in the numbers of mathematics education majors and minors among the student body. The required number of semester hours in mathematics (exclusive of methods) ranged from 25 to 40 with a mean of 32.29. In half these schools, the methods course was taught in the mathematics department. Student teaching requirements were quite varied, as were arrangements for supervision. Data on several other institutional variables are reported. Names of survey participants, a copy of the questionnaire, and descriptions of non-standard courses offered at some respondent schools are included as appendices. (SD)

TH PREPARATION OF SECONDARY SCHOOL MATHEMATICS TEACHERS IN ILLINOIS - A SURVEY

Conducted by
a committee of the
Illinois Council on Mathematics Education

Lewis H. Coon
Katherine Pedersen
John C. Peterson, Chairman

May 10, 1975

In March, 1974, a survey form was mailed to each of the colleges and universities listed in the Blue Book of the Office of the Superintendent of Public Instruction as having an approved program for the preparation of teachers of secondary school mathematics. In October, 1974, the survey form was mailed to those schools which did not respond to the first mailing. The survey form was completed by representatives of 28 of the 53 institutions listed. A list of the persons completing the form for each institution is in Appendix 1. In addition, one other institution communicated that they did not complete the form since they considered their program as not being in secondary mathematics education, but, for the record, they do prepare and recommend preservice students for certification on approved program. Four additional institutions reported that they either had no mathematics education program or did not have one at the secondary school level, while others indicated that they did not have a degree program in mathematics education. A copy of the survey form and accompanying letters are shown in Appendix 2.

For purposes of analyzing the survey results, some questions were tabularized and have their results shown in numerical tables. Questions that elicited some short response which, standing by itself, might influence others to recognize a good and/or unique practice or to clarify a response are included in the body of this report. Some of these responses include objectives in teacher education or in mathematics education, unique program practices, etc.

Wherever possible, interpretations of data that could lead to a "favored" status for some programs were avoided. No attempts were made to organize the data into dichotomous groups such as state colleges and universities vs. private colleges and universities or schools that prepare a "large number" of secondary school mathematics teachers vs. schools that prepare few. The committee felt that organizing the material in this manner would serve no useful goals.

Many of the reports seem to have been strongly influenced in completeness and in style by the nearness of an NCA or NCATE visitation, the size of a faculty, and by the number of teachers certificated in recent years. Such strengths may be a measure of the amount of released time, faculty load, financial support, or of professionalism in mathematics education.

Table 1 contains responses to the questions concerning the total school enrollment and the number of fulltime equivalent faculty at each school. In all but four of the responding schools, (Northeastern Illinois University, Quincy College, Southern Illinois University at Carbondale, and the University of Illinois at Urbana) the mathematics education faculty were also members of the mathematics departments. At SIU-Carbondale and U of I-Urbana some, but not all, of the mathematics educators held joint appointments in mathematics while at the other two schools none of the mathematics educators were members of the mathematics department.

Table 2 contains data on the number of undergraduate students who are majoring in mathematics and mathematics education at these 28 Illinois institutions. Attempts were made to differentiate between students majoring in mathematics education and those who were not.

TABLE 1

TOTAL SCHOOL ENROLLMENT AND NUMBER OF FACULTY IN MATHEMATICS AND MATHEMATICS EDUCATION

SCHOOL	TOTAL SCHOOL ENROLLMENT FALL, 1973	FULLTIME EQUIVALENT FACULTY IN		
		MATH (a)	MATH EDUC. (b)	(b) subset of (a)?
AUGUSTANA COLLEGE	2000	4.33	.00	yes
BRADLEY UNIVERSITY	3850	12.00	12.00	yes
CHICAGO STATE UNIVERSITY	3585	15.00	.50	yes
CONCORDIA TEACHERS	1050	4.25	2.00	yes
DE PAUL UNIVERSITY	6215	15.00	.00	yes
EASTERN ILLINOIS UNIVERSITY	7800	24.00	7.00	yes
ELMHURST COLLEGE	1415	5.00	.50	yes
GREENVILLE COLLEGE	857	2.67	.50	yes
ILLINOIS COLLEGE	--	3.50	3.50	yes
ILLINOIS STATE UNIVERSITY	18000	37.00	13.00	yes
ILLINOIS WESLEYAN	1650	4.00	.25	yes
KNOX COLLEGE	1289	6.50	.15	yes
LAKE FOREST COLLEGE	1050	5.00	.00	yes
LEWIS UNIVERSITY	2000	3.00	.00	yes
MILLIKIN UNIVERSITY	1327	4.00	.00	yes
MONMOUTH COLLEGE	901	3.00	.25	yes
NORTHEASTERN ILLINOIS UNIVERSITY	4441	12.00	2.00	no
NORTHERN ILLINOIS UNIVERSITY	19971	58.00	8.00	yes
NORTH PARK COLLEGE	1130	2.00	.00	yes
PRINCIPIA COLLEGE	839	4.00	.33	yes
QUINCY COLLEGE	1370	3.00	.50	no
ROCKFORD COLLEGE	620	3.00	.33	yes
SANGAMON STATE UNIVERSITY	2040	8.00	.00	yes
SIU CARBONDALE	19147	42.00	2.25	no
SIU EDWARDSVILLE	11000	37.00	6.00	yes
TRINITY COLLEGE	290	1.00	.00	yes
U. OF I.-URBANA	34651	103.00	5.00	no
WESTERN ILLINOIS UNIVERSITY	14200	3 .00	6.00	yes
TOTAL	162688	456.25	70.06	yes-24 no-4
MEAN	6025.48	16.29	2.50	
STANDARD DEVIATION	8182.54	22.27	3.66	
MEDIAN	2000	5.00	.50	
RANGE-LOWER	290	1.00	.00	
RANGE-UPPER	34651	103.00	13.00	

Not all schools keep records of such a nature that enables them to determine whether a student is in mathematics education rather than mathematics. Three of the schools provided information in terms of their seniors rather than for all students. Thus, one must carefully examine this data before attempting to reach any conclusions.

It would appear that the number of students majoring in mathematics or mathematics education has been declining each year since 1970, the earliest year for this survey. (Note the absence of 1970 data for Western Illinois University.) This decline can probably be attributed to a combination of several factors: (1) the increasing enrollment in junior or community colleges, (2) the general economic situation and the belief that job prospects, particularly for teachers, are not very good, and (3) a general trend away from the liberal arts and toward career and vocational education programs. The prospects that the number of students majoring in mathematics will greatly increase are not good. Projections for secondary school enrollments, as shown in the graph below, indicate a slight decline until 1985, followed by an increase in the 1990's to slightly below current levels. Thus, enrollments will not increase because of a great influx of students, as happened in the 1960's. (At professional meetings during 1974, high school teachers indicated that there has been a percentage decrease in upper level mathematics course enrollment.)

In Table 3 are listed the number of secondary school mathematics teachers approved for certification at the institutions in Illinois for the years 1970-1974. It seems as though a trend toward the certification of fewer new mathematics teachers is starting. It also appears as if 1972 was a banner year for certification of new mathematics

TABLE 2

NUMBER OF UNDERGRADUATE MAJORS IN MATHEMATICS AND MATHEMATICS EDUCATION: 1970-1974.

	NUMBER OF UNDERGRADUATE MATH MAJORS EXCLUDING THOSE IN MATH ED. IN					NUMBER OF MATH EDUCATION MAJORS IN				
SCHOOL	70	71	72	73	74	70	71	72	73	74
AUGUSTANA COLLEGE	23	26	17	17	22	0	0	0	0	0
BRADLEY UNIVERSITY	137	123	82	54	55	16	16	18	21	20
CHICAGO STATE UNIVERSITY	3	2	8	4		23	16	26	11	
CONCORDIA TEACHERS	0	0	0	0	2	34	27	32	35	31
DE PAUL UNIVERSITY	120	135	132	130		17	16	20	14	
EASTERN ILLINOIS UNIV.	55	61	77	82	60	180	175	168	154	125
ELMHURST COLLEGE	52	47	60	45		14	11	13	10	
GREENVILLE COLLEGE	30	33	25	33		19	16	17	21	
ILLINOIS COLLEGE	8	5	8	11	12	1	6	5	7	4
ILLINOIS STATE UNIV.	252	252	254	205		588	585	490	375	
ILLINOIS WESLEYAN	5	7	4	8		-	-	1	5	
KNOX COLLEGE	11*	17*	18*	28*	13*	0	0	0	0	0
LAKE FOREST COLLEGE	30	32	36	36	32	0	0	0	0	0
LEWIS UNIVERSITY	-	-	40	39	40	-	-	-	-	0
MILLIKIN UNIVERSITY	4	4	3	3		13	17	17	13	
MONMOUTH COLLEGE	3*	5*	6*	8*	4*	2*	1*	3*	2*	3*
NORTHEASTERN ILL. UNIV.	72	75	83	70	62	148	122	98	76	43
NORTHERN ILL. UNIV.	609	587	469	378	375	-	-	-	-	-
NORTH PARK COLLEGE	24	20	14	11	7	5	7	8	8	4
PRINCIPIA COLLEGE	20	27	21	22	25	4	7	2	4	2
QUINCY COLLEGE	60	50	40	40	40	0	0	0	0	0
ROCKFORD COLLEGE	8*	4*	4*	8*	8*	0	0	0	0	0
SANGAMON STATE UNIVERSITY	11	16	36	32		0	0	0	0	0
SIU CARBONDALE	208	184	152	121	92	174	144	111	77	52
SIU EDWARDSVILLE	232	212	147	187	120	-	-	48	-	24
TRINITY COLLEGE	6	2	3	1	-	0	0	0	0	-
U. OF I.-URBANA	652	524	554	476	478	289	279	219	145	99
WESTERN ILLINOIS UNIV.	-	196	182	138	-	-	221	203	169	-
TOTAL	2635	2646	2474	2187	1447	1527	1666	1499	1147	407
MEAN	101.35	98.00	88.36	71.11	80.39	66.39	69.42	57.65	44.12	22.61
STANDARD DEVIATION	168.82	148	15.13350	11202	12734	134.40	13257	10716	82.71	35.56
MEDIAN	27	27	36	34.5	36	13	13.5	13	10.5	3.5
RANGE	0-652	0-587	0-554	0-476	2-478	0-588	0-585	0-490	0-375	0-125

*These figures are only for seniors and not for all undergraduates.

SECONDARY SCHOOL ENROLLMENTS AND PROJECTIONS: 1950-2000

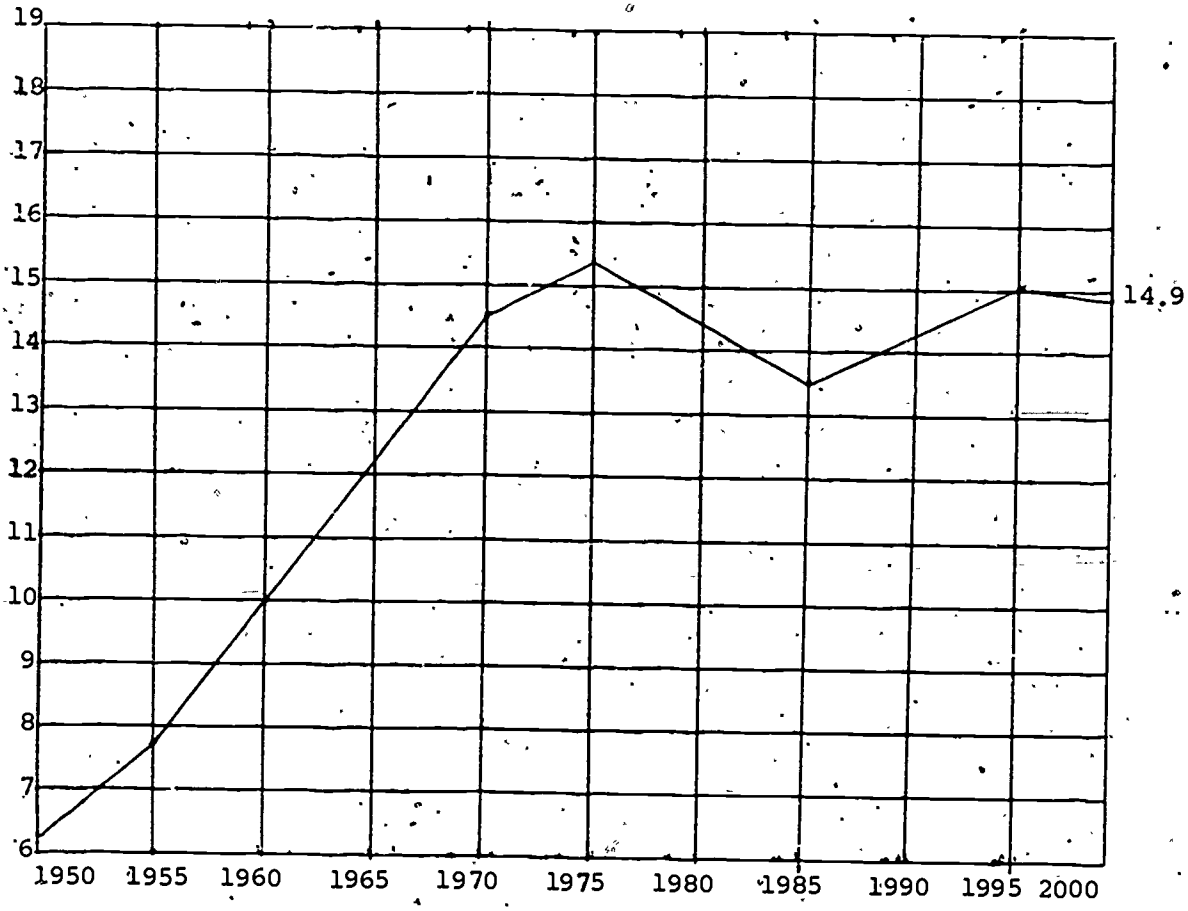

TABLE 3

NUMBER OF SECONDARY SCHOOL MATHEMATICS
TEACHERS CERTIFIED FOR 1970-1974

SCHOOL	1970	1971	1972	1973	1974
AUGUSTANA COLLEGE	9	7	8	6	12
BRADLEY UNIVERSITY	9	7	11	7	4
CHICAGO STATE UNIVERSITY	23	16	26	11	-
CONCORDIA TEACHERS	9	6	8	9	7
DE PAUL UNIVERSITY	16	15	19	12	-
EASTERN ILLINOIS UNIVERSITY	60	61	63	55	39
ELMHURST COLLEGE	4	3	7	5	-
GREENVILLE COLLEGE	4	4	3	3	-
ILLINOIS COLLEGE	2	6	7	6	6
ILLINOIS STATE UNIVERSITY	112	91	82	75	-
ILLINOIS WESLEYAN	-	-	1	5	-
KNOX COLLEGE	2	4	5	4	2
LAKE FOREST COLLEGE	2	2	3	3	2
LEWIS UNIVERSITY	-	-	-	3	3
MILLIKIN UNIVERSITY	3	4	6	7	-
MONMOUTH COLLEGE	1	1	3	3	2
NORTHEASTERN ILLINOIS UNIVERSITY	34	36	30	41	26
NORTHERN ILLINOIS UNIVERSITY	38	38	63	44	24
NORTH PARK COLLEGE	1	4	3	5	1
PRINCIPIA COLLEGE	-	1	2	-	-
QUINCY COLLEGE	5	2	4	1	3
SANGAMON STATE UNIVERSITY	-	1	1	1	-
SIU CARBONDALE	34	43	42	29	27
SIU EDWARDSVILLE	27	17	38	31	18
TRINITY CHRISTIAN COLLEGE	3	1	1	1	-
UNIVERSITY OF ILLINOIS-URBANA	49	54	52	72	55
WESTERN ILLINOIS UNIVERSITY	-	62	54	47	-
TOTAL	450	487	544	487	235
MEAN	19.57	18.73	20.15	18.04	11.93
STD. DEV.	25.84	24.22	23.52	22.22	11.49
MEDIAN	9	6	7	6	6
RANGE	1-112	1-91	1-82	1-75	1-55

teachers. 1973 registered a decline of 10.5% from the 1972 level back to the approximate level of 1971. While figures for 1974 are too sketchy to help confirm this suspected trend, a comparison of figures for the 17 schools for which 1974 data are available indicate that they certified 248, 289, 342, 320, and 235 secondary school mathematics teachers for the years 1970-1974 respectively. The data from these 17 schools indicate that 1972 was the peak year for this period and that not only has there been a decline in certifications since 1972 but that the number of teachers certified in 1974 was 5.2% lower than the number certified in 1970.

Students who major in mathematics education are required to take from 24 semester hours of mathematics at Bradley University to 44 semester hours at Eastern Illinois University. These figures in column a of Table 4 may be deceiving and should be examined carefully. For example, the 44 semester hours of mathematics at Eastern include a four hour methods course. The 33 semester hours required at Northeastern do not include the methods course. An attempt was made to equate the schools on this aspect. Column c gives the number of semester hours in mathematics required after the number of hours of the methods course are subtracted for those schools which teach methods in the mathematics department. This not only reduces the range from 24 hours at Bradley to 40 semester hours at Eastern and at Rockford, but also reduces the mean number of semester hours from 33.77 to 32.29.

Even this adjustment for methods courses has probably not provided an equitable method for comparing total hours required. For example, the 40 non-methods hours required at Eastern include 11 hours in calculus.

TABLE 4

TOTAL NUMBER OF SEMESTER HOURS IN MATHEMATICS REQUIRED OF MATHEMATICS EDUCATION MAJORS AND MINORS.

SCHOOL	NO. HRS. FOR MAJOR (a)	METHODS IN MATH DEPT? (b)	NO. HRS. FOR MAJOR W/O METHODS (c)=a-b	MINOR OFFERED?	NO.HRS. FOR MINOR
AUGUSTANA COLLEGE	32.00	No	32.00	Yes	24.00
BRADLEY UNIVERSITY	24.00	No	24.00	No	-
CHICAGO STATE UNIVERSITY	42.00	Yes (3)*	39.00	No	-
CONCORDIA TEACHERS	32.00	Yes (1.33)	30.67	Yes	20.00
DE PAUL UNIVERSITY	29.33	No	29.33	No	-
EASTERN ILL. UNIVERSITY	44.00	Yes (4)	40.00	Yes	24.00
ELMHURST COLLEGE	32.00	Yes (4)	28.00	No	-
GREENVILLE COLLEGE	32.00	Yes (2)	30.00	No	-
ILLINOIS COLLEGE	25.00	No	25.00	No	-
ILL. STATE UNIVERSITY	32.00	Yes (3)	29.00	Yes	24.00
ILLINOIS WESLEYAN	-	Yes	-	No	-
KNOX COLLEGE	37.00	No	37.00	No	-
LAKE FOREST COLLEGE	-	No	-	No	-
LEWIS UNIVERSITY	-	Yes	-	No	-
MILLIKIN UNIVERSITY	32.00	No	32.00	No	-
MONMOUTH COLLEGE	33.00	-	-	Yes	20.00
NORTHEASTERN ILL. UNIV.	33.00	No	33.00	No	-
NORTHERN ILL. UNIVERSITY	39.00	Yes (3)	36.00	Yes	21.00
NORTH PARK COLLEGE	30.00	No	30.00	No	-
PRINCIPIA COLLEGE	33.33	Yes (3.33)	30.00	No	-
QUINCY COLLEGE	-	No	-	No	-
ROCKFORD COLLEGE	40.00	No	40.00	No	-
SANGAMON STATE UNIVERSITY	-	No	-	-	-
SIU CARBONDALE	35.00	Yes (3)	32.00	Yes	24.00
SIU EDWARDSVILLE	32.00	Yes (2.67)	29.33	Yes	20.00
TRINITY CHRISTIAN COLLEGE	-	No	-	No	-
U. OF I.-URBANA	37.00	No	37.00	Yes	22.00
WESTERN ILLINOIS UNIV.	37.33	Yes (2.67)	34.67	Yes	20.00
TOTAL	742.99	Yes 13 No 14	678.00	Yes 10 No 17	219.00
MEAN	33.77		32.29		21.90
STD. DEV.	4.78		4.45		1.81
MEDIAN	32.50		32.00		21.50
RANGE	24-44		24-40		20-24

*Numbers in parentheses represent semesters hours credit given for the methods course.

As can be seen in Table 5, Elmhurst College does not accept any course below Calculus III in the number of hours required for graduation. Similarly, Illinois College does not accept courses below Calculus II. It would appear that each school except Elmhurst and Illinois College accept their entire calculus sequence in the number of hours in mathematics that are required. Perhaps the problem could be avoided in the future if the question was phrased so that it asked for the number of hours required in mathematics excluding those in calculus or methods.

Tables 5 and 6, respectively, list the lowest and highest numbered mathematics course accepted for a mathematics education major. Some of this information has already been used to help interpret date in Table 4. The date in Table 5 is self-explanatory. Students at thirteen of the twenty-eight responding schools begin fulfilling their required courses with a beginning calculus course. All but two of the twenty-eight schools accept Calculus I or below.

Ten schools did not indicate the highest numbered mathematics course accepted for mathematics majors. Eight additional schools indicated that they had no limit, and five others had independent study or senior seminar.

When is a student formally recognized as being in mathematics education? Sixteen schools have a minimum grade point average. These g.p.a. requirements are given in Table 7. Grade point average requirements range from 2.00-2.50 (A=4.0) with a mean of 2.23.

Some schools consider some personality traits of a student before they admit him/her to teacher education. These personality traits are given below:

Concordia: Cooperativeness, dependability, ability to communicate..

TABLE 5

LOWEST NUMBERED MATHEMATICS COURSES ACCEPTED FOR MATHEMATICS EDUCATION MAJORS

SCHOOL	COURSE NUMBER	TYPE OF COURSE: ELEM. SCHOOL MATH	INTER. ALG.	ELEM. FUNCTIONS	MATH ANALYSIS	CALC I WITH ANALYTIC GEOMETRY	CALC I WITHOUT ANALYTIC GEOMETRY	CALC II WITH ANALYTIC GEOMETRY	CALC. III	COMP. SCIENCE	FOUNDATIONS
Augustana College	116			X							
Bradley University	any										
Chicago State U.	151		X								
Concordia Teachers	301	X									
DePaul University	150						X				
Eastern Ill. Univ.	2310									X	
Elmhurst College	251								X		
Greenville College	115										
Illinois College	205							X			
Illinois State Univ.	115						X				
Illinois Wesleyan	171				X						
Knox College	151					X					
Lake Forest College	***										
Lewis University	***										
Millikin University	1400					X					
Monmouth College	151						X				
Northeastern Ill. U.	121										X
Northern Illinois U.	229					X					
North Park College	151						X				
Principia College	151					X					
Quincy College	***										
Rockford College	131						X				
Sangamon State U.	***										
SIU-Carbondale	150/151					X					
SIU-Edwardsville	150a					X					
Trinity Christian Col.	***										
U. of I. at Urbana	120					X					
Western Illinois U.	133					X					
TOTALS		1	1	1	1	8	5	1	1	1	1

TABLE 6

HIGHEST NUMBERED MATHEMATICS COURSES ACCEPTED FOR MATHEMATICS EDUCATION MAJORS

SCHOOL	COURSE NUMBER	TYPE OF COURSE: NO LIMIT	ADVANCED STUDIES	INDEPENDENT STUDY	METHODS	SENIOR SEMINAR	TOPOLOGY	MODERN ALG. II
Augustana College	450						X	
Bradley University	none	X						
Chicago State University	362							X
Concordia Teachers	48-							
DePaul University	none	X						
Eastern Illinois University	none	X						
Elmhurst College	466				X			
Greenville College	450							
Illinois College	none	X						
Illinois State University	390			X				
Illinois Wesleyan	495			X				
Knox College	403		X					
Lake Forest College	***							
Lewis University	***							
Millikin University	4804							
Monmouth College	422			X				
Northeastern Illinois Univ.	3--						X	
Northern Illinois University	none	X						
North Park College	491			X				
Principia College	none	X						
Quincy College	***							
Rockford College	395					X		
Sangamon State University	***							
SIU Carbondale	***							
SIU Edwardsville	none	X						
Trinity Christian College	***							
U of I at Urbana	392							
Western Illinois University	none	X						
TOTALS		8	1	4	1	1	2	1

Elmhurst:	Diligence, dependability, honesty, social maturity.
Greenville:	16 item personality fact test by Cattel.
Illinois State:	All.
Millikin:	Those that might render the person ineffective in a teaching relationship.
North Park:	Cooperative, conscientious.
SIU-Edwardsville:	Clear voice, outgoing personality.
Illinois Wesleyan:	Dependability in study, good work habits, courtesy, interest in helping other students to understand mathematics.
Western Illinois:	Personal adjustment screening test at the opinion of admissions committee.

A problem arose when schools were asked if admission to teacher education was competency-based. the term "competency-based" can be interpreted several different ways. Replies to this question were changed if it appeared that the student needed to obtain a certain grade point average as the only criteria for acquiring competence. When compiling this data, some latitude was taken in its interpretation. Thus, Concordia Teachers College indicated that admission to teacher education was partly competency-based. They indicated that the student must be competent in "personality traits." Greenville College also stated that admission was partially competency-based. Students at Grrenville must be competent in "Skill areas (reading, handwriting, speaking extemporaneously, video-taped presentation.)" Northeastern Illinois requires competence in the student's major area as indicated "by faculty recommendation (and grade point average.)" Northeastern students must also exhibit proficiency in oral and written language. DePaul University commented that it "does not restrict entrance into any undergraduate program."

Admission to teacher education does not always mean that a student will be allowed to student teach. Nineteen schools indicated that they required a student to have a minimum grade point average. These g.p.a. requirements are given in Table 7. Minimum grade point averages range from 2.00-3.00 (A=4.00) with a mean of 2.24 and a median of 2.20.

Requirements for student teaching other than a grade point average vary. Personality traits are given below:

Knox College: Poise, ability to get ideas across.

Monmouth College: An evaluation form used by a Teacher Education Committee has items which ask instructors to rate the student in the personality areas of: appearance, alertness, mental and verbal ability, enthusiasm, poise, manners, intelligence, and maturity. Evaluators were also asked to comment on the student's character regarding honesty and capacity to serve as an exemplar.

Principia: Self-knowledge; sense of humor; self-confidence; ability to work with others; ability to empathize; sense of purpose and responsibility; selflessness; perceptiveness; mature judgement; ability to take criticism; enthusiasm; creativity.

SIU-Carbondale: Speaking effectiveness, enthusiasm, imagination creativity, ability to relate to other people.

More schools indicated that permission to student teach is competency-based than indicated that admission to teacher education was competency-based. Six schools have some form of competency-based requirement in order for a person to student teach. What is the nature of these competancies? At Knox College, part of Ed. 390-391 is competency-based. Ed. 390,391, Education Block, is described in the catalog as the "Integration of methodology and learning theory. In addition to 4 hours of class work, students must work in a teacher's aide and tutorial role in an area school for eight weeks." Northeastern Ill. University stated that "Competency must be evidenced in field experiences

TABLE 7

MINIMUM GRADE POINT AVERAGES AND COMPETENCY-BASED CRITERIA FOR ADMISSION TO TEACHERS EDUCATION OR PERMISSION TO STUDENT TEACH

SCHOOL	ADMISSION TO TEACHERS ED. Minimum Grade Point Avg. (A=4.0)	ADMISSION TO TEACHERS ED. Competency based?	PERMISSION TO STUDENT TEACH Minimum Grade Point Avg. (A=4.0)	PERMISSION TO STUDENT TEACH Competency based?
AUGUSTANA COLLEGE	2.50	No	2.50	Yes
BRADLEY UNIVERSITY	2.25	No	2.25	--
CHICAGO STATE UNIVERSITY	--	--	--	--
CONCORDIA TEACHERS	2.00	No	3.00	Yes
DE PAUL UNIVERSITY	2.00	No	2.00	No
EASTERN ILLINOIS UNIVERSITY	2.15	No	2.10	Yes
ELMHURST COLLEGE	2.30	No	--	No
GREENVILLE COLLEGE	2.25	Yes	2.20	Yes
ILLINOIS COLLEGE	2.00	--	2.00	--
ILLINOIS STATE UNIVERSITY	2.20	No	2.20	No
ILLINOIS WESLEYAN	--	--	2.50	--
KNOX COLLEGE	--	--	--	--
LAKE FOREST COLLEGE	--	--	--	--
LEWIS UNIVERSITY	--	--	--	--
MILLIKIN UNIVERSITY	2.50	No	2.50	No
MONMOUTH COLLEGE	--	--	2.00	No
NORTHEASTERN ILL. UNIV.	2.25	Yes	2.25	Yes
NORTHERN ILLINOIS UNIV.	2.15	No	2.15	No
NORTH PARK COLLEGE	2.00	No	2.20	No
PRINCIPIA COLLEGE	--	--	--	No
QUINCY COLLEGE	--	--	2.00	--
ROCKFORD COLLEGE	--	No	--	--
SANGAMON STATE UNIVERSITY	--	--	--	--
SIU CARBONDALE	2.50	No	2.20	Yes
SIU EDWARDSVILLE	2.50	No	2.20	No
TRINITY CHRISTIAN COLLEGE	--	--	2.00	--
U. OF I. AT URBANA	--	--	--	--
WESTERN ILLINOIS UNIVERSITY	2.15	--	2.25	--
TOTAL	35.70	--	42.50	--
MENA	2.23	--	2.24	--
STD. DEV.	.18	--	.24	--
MEDIAN	2.22	--	2.20	--
RANGE-LOWER	2.00	--	2.00	--
RANGE-UPPER	2.50	--	3.00	--
YES	--	2	--	6
NO	--	13	--	9

while in methods courses." Finally, SIU-Carbondale stated that "to some extent, the student must be able to communicate as a math teacher, know mathematics; both of these are based on observation by methods teacher and on grades."

Mathematics methods courses are summarized in Table 8. Four schools (DePaul, Monmouth, Rockford, and Sangamon State) do not offer a methods course in mathematics. The course ranges from 1.33 semester hours of credit to 5 hours with a mean of 2.94 semester hours at the schools which offer the course. The "typical" methods course meets about 40 times during the semester. These 40 meetings include 28 lecture/recitations, 8 laboratory sessions, and 3 sessions in school classrooms.

Mathematics methods courses often contain some unique experiences that are not contained in other education or mathematics courses. The scope and variety of these unique experiences can be seen in the following comments.

Concordia:	Orientation to mathematics teaching as a profession. Familiarization with particular math education sources, materials, and organizations. Discussion of problems and procedures of teaching within a math context.
Eastern:	Assigned readings from mathematics education related journals and other publications. Assignment to assist a faculty member in a college math class including some opportunity to teach the class.
Elmhurst:	History of mathematics, logic as an expository tool, presentation of lessons with class simulating high school students (video tape). Student becomes acquainted with at least one widely used textbook series. Preparation of tests and examinations in mathematics.
Greenville:	History of mathematics education in United States. Preparation of intermediate and high school math lessons. Discussion of mathematical techniques as displayed in high school texts. Review of various topics taught in high schools.

TABLE 8

THE MATHEMATICS METHODS COURSE: SEMESTER HOURS CREDIT; TYPE AND NUMBER OF MEETINGS; DEPARTMENT WHERE TAUGHT.

SCHOOL	SEM. HOURS CREDIT (A)	TOTAL NUMBER OF MEETINGS: TOTAL COURSE (B)	LECTURE/ RECITATION (C)	LAB (D)	SCHOOL CLASSROOMS (E)	DEPT. WHERE TAUGHT (F)
AUGUSTANA COLLEGE	2.67	30.00	15.00	15.00	10.00	EDUC
BRADLEY UNIVERSITY	3.00	--	--	--	--	EDUC
CHICAGO STATE UNIVERSITY	3.00	45.00	.00	.00	.00	MATH
CONCORDIA TEACHERS	1:33	20.00	17.00	3.00	2.00	MATH
DE PAUL UNIVERSITY	.00	--	--	--	--	--
EASTERN ILLINOIS UNIVERSITY	4.00	60.00	45.00	15.00	.00	MATH
ELMHURST COLLEGE	4.00	24.00	20.00	.00	4.00	MATH
GREENVILLE COLLEGE	2.00	28.00	10.00	18.00	.00	MATH
ILLINOIS COLLEGE	3.00	45.00	30:00	15.00	6.00	EDUC
ILLINOIS STATE UNIVERSITY	3.00	48.00	35.00	13.00	.00	MATH
ILLINOIS WESLEYAN	--	--	--	--	--	--
KNOX COLLEGE	1.67	15.00	15.00	.00	.00	EDUC
LAKE FOREST COLLEGE	2.00	50.00	50.00	.00	.00	EDUC
LEWIS UNIVERSITY	--	--	--	--	--	--
MILLIKIN UNIVERSITY	4.00	65.00	52.00	5.00	8.00	EDUC
MONMOUTH COLLEGE	.00	--	--	--	--	--
NORTHEASTERN ILL. UNIVERSITY	3.00	32.00	16.00	16.00	.00	EDUC
NORTHERN ILLINOIS UNIVERSITY	3.00	47.00	47.00	--	--	MATH
NORTH PARK COLLEGE	3.33	40.00	30.00	10.00	.00	EDUC
PRINCIPIA COLLEGE	3.33	20.00	.00	.00	.00	MATH
QUINCY COLLEGE	2.00	32.00	32.00	.00	--	EDUC
ROCKFORD COLLEGE	.00	--	--	--	--	--
SANGAMON STATE UNIVERSITY	.00	--	--	--	--	--
SIU CARBONDALE	3.00	60.00	45.00	15.00	--	MATH
SIU EDWARDSVILLE	2.67	44.00	44.00	.00	.00	MATH
TRINITY CHRISTIAN COLLEGE	--	--	--	--	--	--
U. OF I. AT URBANA	5.00	40.00	20.00	10.00	10.00	EDUC
WESTERN ILLINOIS UNIVERSITY	2.67	48.00	--	--	--	MATH
TOTAL	61.67	793.00	523.00	135.00	40.00	--
MEAN	2.47 (2.94)	39.67	27.53	7.50	2.50	--
STD. DEV.	1.33 (.55)	13.82	16.14	6.95	3.71	--
MEDIAN	3.00 (3.00)	42.00	30.00	7.50	.00	--
RANGE-LOWER	.00 (1.33)	15.00	.00	.00	.00	--
RANGE-UPPER	5.00 (5.00)	65.00	52.00	18.00	10.00	--

NOTE: A .00 in Column A, followed by -- in Columns B-F indicates that no methods course is taught. Figures in parentheses in Column A are only for schools that offer a methods course.

Illinois College:	Micro-teaching, observation of cooperating teacher, development of lesson plans.
Illinois State:	Attention to pedagogy, learning and teaching of mathematics, teaching strategies, new curriculum projects, etc.
Knox College:	Discussion and analysis of problems peculiar to math education. Methods of motivation, methods of keeping up with changes, methods to test and otherwise examine students. Psychology of learning and studying mathematics.
Millikin:	Students begin working and planning with teacher under whom they will be student teaching later.
Monmouth:	We don't have a methods course. Sometimes our students take a course jointly with Knox College students at Knox College.
Northeastern:	Video-taped peer teaching. Students are observing and working with secondary age young people while they are taking the course.
Northern:	Consideration of 7-12 curriculum in mathematics, consideration of 7-12 methods of teaching, micro-teaching.
North Park:	Micro-teaching and video-taping.
Principia:	Students actually teach in college math courses, usually pre-calculus courses.
Quincy:	Video-tape of classroom performance and critique based on video playback. Study plans, etc.
SIU-Carbondale:	Laboratory meeting developed expressly to attain skills in teaching mathematics.
SIU-Edwardsville:	Discussion of problems in teaching mathematics.

Student teaching is one field experience that all undergraduate education students will have. Some schools provide field experiences outside of student teaching. These experiences vary from school to school and are somewhat determined by the size of community in which the college is located. Field experiences other than student teaching provided for mathematics education students are given below.

Augustana:	In conjunction with Ed. 484-Methods: one observation per week plus miniteaching assignments, supervised by a mathematics clinical instructor at a local high school. Evaluated by the clinical instructor and the Augustana instructor of the methods course.
Concordia:	School visitation in secondary mathematics, micro-teaching in math education.
DePaul:	100 hours either in program A or on their own is required before student teaching. Supervised if in program A, by self or cooperating teacher if on their own.
Eastern:	In conjunction with the methods class: Jr. High and Secondary tutoring opportunities. Supervised lesson planning and presentation in selected university mathematics courses.
Greenville:	September experience in public schools during sophomore year.
Illinois College:	In Ed. 271, a tutor-aide segment in a local school classroom is required.
Illinois State:	Some direct experience in C & I 200, micro-teaching is included also.
Knox:	Teacher aide, tutor required of all students in Ed. 390-391.
Millikin:	Students visit local schools as part of required work in Ed. 2000, one period per week, in Ed. 4100 about 6 times, in Ed. 4201 about 8 times. These visits are supervised by the instructor of the course.
Monmouth:	Ed. 200, 30 clock hours as a student aide; in Ed. 201 same format, different placement. Ed. 340 has some micro-teaching.
Northeastern:	Two hours per week for students in 35-331 and 72-301. Instead students may elect to take field experiences in which they receive 1 hour of credit for every 4 hours spent in the field.
Northern:	Experimenting with a 2 hour course for juniors that includes teaching activities at the elementary and junior high levels along with seminars on teaching problems.
North Park:	Ed. 314, 316, 3 half days a week to work with small groups of individuals. Supervised by classroom teacher and curriculum teacher. Evaluated by classroom teacher.

Principia:	Teacher aiding, teaching assistants.
Quincy:	45 hours observation and aiding.
Rockford:	Approval for teaching semester requires 100 hours working with children approved by Ed. Dept. usually in our January Interim. Non-credit except 3-interims are required for graduation. Summer experience is also satisfactory.
SIU-Carbondale:	Concurrent with Ed. 302 and Math 311 is a half-day practicum in public school -- supervised by education staff. Credit is within Ed. 302.
SIU-Edwardsville:	Sec. Ed. 401 a,b,c, Sec. Ed. Teacher Training 22 hours credit includes a year of experience in a school. Two quarters spending mornings or afternoons as teacher aide and one quarter full time student teaching.
Trinity Christian:	Some teacher aide work for several weeks during the junior year.

As the culmination of the undergraduate preparation, each student must student teach. Data on student teaching is contained in Table 9. Student teaching lasts from 6 weeks to 16 weeks with an average (mean) length of 10.5 weeks. For this, students receive from 5.33 to 12 semester hours credit (mean = 8.56) and teach from 2 to 5.5 classes (mean = 3.90).

What is the role of the mathematics department during student teaching? For most schools, this consists of nothing or taking partial responsibility for the supervision. A complete list of replies is given below:

Augustana:	Observation only.
Bradley:	None except certification.
Chicago State:	Consulting role.
Concordia:	Serve as college supervisor.
DePaul:	None.

TABLE 9

STUDENT TEACHING: SEMESTER HOURS CREDIT;
NUMBER OF CLASSES TAUGHT AND WEEKS DURATION;
AND SELECTION OF SUPERVISOR AND COOPERATING TEACHER

SCHOOL	SEM. HOURS CREDIT	NO. OF CLASSES TAUGHT	NO. OF WEEKS DURATION	DEPARTMENT SELECTING SUPERVISOR	DEPARTMENT SELECTING COOPERATING TEACHER
AUGUSTANA COLLEGE	9.33	4.00	10.00	Education	Education
BRADLEY UNIVERSITY	6.00	2.00	-	-	Education
CHICAGO STATE UNIVERSITY	6.00	2.00	14.00	Education	Education
CONCORDIA TEACHERS	5.33	-	6.00	Math	Education
DE PAUL UNIVERSITY	12.00	3.50	10.00	Education	Education
EASTERN ILLINOIS UNIV.	12.00	4.00	15.00	Math & Ed.	Math & Ed.
ELMHURST COLLEGE	8.00	-	8.00	Education	Education
GREENVILLE COLLEGE	9.00	3.50	9.00	Math	Math
ILLINOIS COLLEGE	8.00	5.00	8.00	Education	Education
ILLINOIS STATE UNIVERSITY	10.00	3.50	9.00	Math	Math
ILLINOIS WESLEYAN	-	4.50	14.00	Math	Education
KNOX COLLEGE	8.33	-	10.00	Math & Ed.	Math & Ed.
LAKE FOREST COLLEGE	8.00	5.00	10.00	Education	Education
LEWIS UNIVERSITY	8.00	-	-	Education	Education
MILLIKIN UNIVERSITY	8.00	-	8.00	Education	Education
MONMOUTH COLLEGE	10.00	5.50	10.00	Education	Math & Ed.
NORTHEASTERN ILL. UNIV.	6.00	2.50	16.00	Math & Ed.	High School
NORTHERN ILLINOIS UNIV.	7.00	3.00	7.50	Math	High School
NORTH PARK COLLEGE	6.67	5.00	10.00	Education	Education
PRINCIPIA COLLEGE	10.00	-	10.00	Education	Education
QUINCY COLLEGE	8.00	5.00	8.00	Math & Ed.	High School
ROCKFORD COLLEGE	6.00	4.00	10.00	Education	Education
SANGAMON STATE UNIVERSITY	-	-	-	-	-
SIU CARBONDALE	12.00	4.50	15.00	Education	Education
SIU EDWARDSVILLE	10.33	5.00	10.00	Math	Education
TRINITY CHRISTIAN COLLEGE	12.00	2.00	16.00	Education	Education
U. OF I. AT URBANA	6.00	4.50	7.00	Education	Education
WESTERN ILLINOIS UNIV.	10.67	-	12.00	Education	Education
TOTAL	222.66	78.00	262.50		
MEAN	8.56	3.90	10.50		
STD. DEV.	2.09	1.09	2.84		
MEDIAN	8.00	4.00	10.00		
RANGE-LOWER	5.33	2.00	6.00		
RANGE-UPPER	12.00	5.50	16.00		

EIU:	Assignment, supervision, and evaluation in cooperation with School of Education.
Elmhurst:	Department chairman visits.
Greenville:	Instruct the final methods course and share the responsibility of supervising.
ISU:	Department provides supervisor for student teaching.
Illinois Wesleyan:	The Teaching Problems Seminar, taught by members of the mathematics department, meets weekly for 14 weeks of student teaching.
Knox:	Partial supervision.
Lake Forest:	None.
Lewis:	We train the student in mathematics.
Millikin:	Chairman of Mathematics Department usually visits student teacher's classroom.
Monmouth:	Informal participation. Education department has the responsibility.
Northeastern:	None.
Northern Ill.:	Members of the department in mathematics education serve as the university supervisor.
North Park:	None.
Principia:	Mathematics Department teaches methods courses; also has the role of 1/2 advisor for student.
Quincy:	Oversee, visit, supervise.
Rockford:	At least two members of the department usually visit once or twice.
SIU-Carbondale:	We will have the practice teachers on campus one Saturday during the semester. Anticipation of some visitation by math staff to develop.
Trinity Christian:	I usually assist in supervision.
U. of I.-Urbana:	None.
Western Ill.:	Advisory.

Northern Illinois is involved in a Cooperative Teacher Education

TABLE 10

AVAILABILITY OF ADVANCED DEGREES IN MATHEMATICS AND MATHEMATICS EDUCATION

SCHOOL	MASTERS IN MATHEMATICS DEPARTMENT	MASTERS IN EDUCATION DEPARTMENT	DOCTORATES IN MATHEMATICS DEPARTMENT	DOCTORATES IN EDUCATION DEPARTMENT
AUGUSTANA COLLEGE	No	No	No	No
BRADLEY UNIVERSITY	No	Yes	No	No
CHICAGO STATE UNIVERSITY	Yes	No	No	No
CONCORDIA TEACHERS	No	Yes	No	No
DE PAUL UNIVERSITY	No	Yes	No	No
EASTERN ILLINOIS UNIVERSITY	Yes	No	No	No
ELMHURST COLLEGE	No	No	No	No
GREENVILLE COLLEGE	No	No	No	No
ILLINOIS COLLEGE	No	No	No	No
ILLINOIS STATE UNIVERSITY	Yes	Yes	Yes	Yes
ILLINOIS WESLEYAN	No	No	No	No
KNOX COLLEGE	No	No	No	No
LAKE FOREST COLLEGE	No	No	No	No
LEWIS UNIVERSITY	No	No	No	No
MILLIKIN UNIVERSITY	No	No	No	No
MONMOUTH COLLEGE	No	No	No	No
NORTHEASTERN ILLINOIS UNIV.	Yes	No	No	No
NORTHERN ILLINOIS UNIV.	Yes	Yes	No	No
NORTH PARK COLLEGE	No	No	No	No
PRINCIPIA COLLEGE	--	--	--	--
QUINCY COLLEGE	No	No	No	No
ROCKFORD COLLEGE	No	No	No	No
SANGAMON STATE UNIVERSITY	--	--	--	--
SIU CARBONDALE	No	Yes	No	Yes
SIU EDWARDSVILLE	Yes	Yes	No	No
TRINITY CHRISTIAN COLLEGE	No	No	No	No
U. OF I. AT URBANA	No	Yes	No	Yes
WESTERN ILLINOIS UNIVERSITY	Yes	Yes	No	No
TOTAL YES	7	10	1	3
TOTAL NO	19	16	25	23

Project (CTEP) with School District 214. Some of their students do their student teaching in CTEP.

Table 10 contains data on the availability of advanced degrees in mathematics and mathematics education in Illinois. Seven schools offer a masters degree in mathematics education through the mathematics department and ten through education. One school (Illinois State) offers a doctorate in mathematics education through their mathematics department; three schools offer a doctorate in mathematics education through departments in education.

SUMMARY

This survey was not an attempt to obtain yet another list of topical areas for a Secondary Mathematics Methods textbook such as those in the literature, in doctoral surveys, or available in the table of contents of current methods texts. A study of the changing list of topics in the latter will reveal the trend from year to year in commercial presentation form. Only a comprehensive survey or investigative research program can reveal what really goes on in the classrooms where teachers are prepared. This survey was an effort to obtain a realistic report, without extremely costly personal observations, of what is going on at each institution in Illinois.

It is quite clear that no text could contain the major emphasis of secondary math methods courses revealed here -- the individual guidance and encouragement given each student by his professor(s) to become a good experienced teacher before they teach professionally. Each institution has molded a program unique to their situation. The constraints imposed by geographical location, lack of nearby secondary schools, number of mathematics education students, and number of

mathematics education faculty members have served to force each faculty group to carry on a program that is almost unique to their own case. There does not seem to be two programs that are similar or congruent.

Many of the institutions in Illinois have made it quite clear that they do not want to close the door to any student who wants to make a decision to become a secondary school teacher late in his/her college or university career. They "leave the door open" so that a student can complete his/her educational preparation in one year or less. However, most institutions are joining an ever increasing group that acknowledges that the preparation of a teacher is a life long program that should begin as early as possible. For university students, this means sometime during the late freshman or early sophmore year. More courses are including a short term of field experiences in an actual classroom atmosphere. Students who complete two or three courses over a year or more arrive at the methods course and at the student teaching levels more able to benefit from, explore in, and emphathize with the difficulties some students have in learning. The various strategies and theories of learning and of teaching are so much richer for them than for the short termer.

This survey has revealed no institution in Illinois wants to close the door of preparation to a future teacher of secondary mathematics. These schools have designed very unique programs to meet the needs of their sutdents.

It is the hopes of the ICME committee, and of every ICME supporter that a reader of this report may benefit from the many little facets of this report. Only by thorough reading and re-reading can one elicit guidance in re-evaluating a single program, whether it be their own or one of the others.

APPENDIX 1

List of Respondents
and their Institutions

AUGUSTANA COLLEGE

Donald E. McLaughlin
Department of Mathematics
Augustana College
Rock Island, IL 61291
304-794-7214

BRADLEY UNIVERSITY

Wayne McGaughey
Bradley University
Peoria, IL 61606
309-676-7611

CHICAGO STATE UNIVERSITY

Don D. Bunt
Mathematics Department
Chicago State University
Chicago, IL 60628
312-995-2124

CONCORDIA TEACHERS COLLEGE

Norman E. Young
Concordia Teachers College
River Forest, IL 60305
312-771-8300 ext. 245

DE PAUL UNIVERSITY

Walter Pranger
Department of Mathematics
2323 N. Seminary
Chicago, IL 60614
312-549-6900 ext. 620

EASTERN ILLINOIS UNIVERSITY

Lewis H. Coon
Department of Mathematics
Eastern Illinois University
Charleston, IL 61920
217-581-3428

ELMHURST COLLEGE

Frank B. Allen
Elmhurst College
Elmhurst, IL 60126
312-BR9-4100

GREENVILLE COLLEGE

Herald Walton
Greenville College
Greenville, IL 62246
618-664-1840

ILLINOIS COLLEGE

Edgar Franz
Illinois College
Jacksonville, IL 62650
217-245-7126

ILLINOIS STATE UNIVERSITY

Kenneth Retzer or Dick Crumley
Mathematics Department
Illinois State University
Normal, IL 61761
309-438-7990 (Retzer)
436-7167 (Crumley)

ILLINOIS WESLEYAN UNIVERSITY

Evelyn K. Wantland
Illinois Wesleyan University
Bloomington, IL 61701
309-556-3069

KNOX COLLEGE

Frank H. Young
Knox College
Box 133
Galesburg, IL 61401
309-343-0112 ext. 420

LAKE FOREST COLLEGE

Ralph Shively
Lake Forest College
Lake Forest, IL 60045
312-234-3100

LEWIS UNIVERSITY

Walter S. Szalajka
Box 783, Lewis University
Lockport, IL 60441
815-838-0500 ext. 418

MILLIKIN UNIVERSITY

Ronald M. Shelton
Mathematics Department
Millikin University
Decatur, IL 62522
217-424-6270

MONMOUTH COLLEGE

R. D. Boswell, Jr.
Department of Mathematics
Monmouth College
Monmouth, IL 61462
309-457-2061

NORTHEASTERN ILLINOIS UNIVERSITY

Jim Lockwood
Department of Secondary Ed.
Northeastern Illinois University
Bryn Mawy & St. Louis Ave.
Chicago, Illinois 60625
312-583-4050 ext. 8267

NORTHERN ILLINOIS UNIVERSITY

Merlyn J. Behr (Larry Sowder)
Department of Mathematics
Northern IL University
DeKalb, IL 60115
815-753-2120

NORTH PARK COLLEGE

Paul Mars (or Alice Iverson)
North Park College
5125 N. Spaulding
Chicago, IL 60625
312-JU3-2700

PRINCIPIA COLLEGE

Mrs. Lee Gerber
Principia College
Elsah, IL 62028
618-466-2131

QUINCY COLLEGE

Joseph Windolph (M. Reinhart)
Quincy College
Quincy, IL 62301
217-222-8020

ROCKFORD COLLEGE

John A. Schumaker
Rockford College
Rockford, IL 61101
815-226-4135

SANGAMON STATE UNIVERSITY

Coordinator
Mathematical Systems Program
Sangamon State University
Springfield, IL 62708
217-786-6600

SOUTHERN ILLINOIS UNIVERSITY

Katherine Pederson
Mathematics Department
Southern Illinois University
Carbondale, IL 62901
618-453-5302

SIU-EDWARDSVILLE

Eric Sturley
Mathematics Department
SIU-Edwardsville
Edwardsville, IL 62025
618-692-2417

TRINITY CHRISTIAN COLLEGE

Richard Kooy
Trinity Christian College
6601 College Drive
Palos Heights, IL 60463
312-597-3000

UNIVERSITY OF ILLINOIS

A. L. Peressini
Department of Mathematics
University of Illinois
Urbana, IL 61801
217-333-6336

WESTERN ILLINOIS UNIVERSITY

J. Stipanowich
Mathematics Department
Western Illinois University
Macomb, IL 61455
309-298-1383

APPENDIX 2

Copies of Letters and Survey Form

ILLINOIS COUNCIL ON MATHEMATICS EDUCATION

April 26, 1974

ICME

Member Institutions

Augustana College
Aurora College
Chicago State University
Concordia Teachers College
DeLourdes College
DePaul University
Eastern Illinois University
Elmhurst College
Eureka College
Illinois Benedictine College
Illinois State University
Illinois Wesleyan University
Knox College
Lake Forest College
McKendree College
Millikin University
Monmouth College
Northeastern Illinois University
Northern Illinois University
Northwestern University
Principia College
Quincy College
Rockford College
Roosevelt University
Sangamon State University
Southern Illinois University
Southern Illinois University - Edwardsville
Trinity Christian College
University of Chicago
University of Illinois at Chicago Circle
University of Illinois
Western Illinois University

Representation from

Office of Superintendent of Public Instruction, State of Illinois
Illinois Council of Teachers of Mathematics
Illinois Section of Mathematical Association of America

The Illinois Council on Mathematics Education (ICME) is an organization whose purpose is to identify interinstitutional problems affecting mathematics education, disseminate information about these problems and recommend ways in which these problems may be solved. One of our areas of concern is the preparation of secondary school mathematics teachers.

It has been six years since a statewide meeting of college and university teachers met to exchange comments and ideas about their respective programs. During this time major changes in teacher preparation, e.g. competency-based certification, instructional media, and other innovations, have taken place. In order to set the groundwork for a series of discussions on the preparation of mathematics teachers in Illinois, the enclosed questionnaire is being mailed to all ICME member schools. The first discussion will be held at the ISMAA meeting May 10-11, 1974 at Knox College in Galesburg. Final results from the questionnaire will be available at the ICTM meeting November 8-9, 1974 in DeKalb.

We would appreciate it if you would complete the enclosed questionnaire. Your work in completing the questionnaire will be reduced if you Xerox the catalog pages which contain listings of the mathematics and mathematics education courses at your institution. Please return the completed questionnaire, a Xerox copy of the catalog pages of mathematics and mathematics education courses, copies of the syllabi for any secondary school mathematics methods courses, and a list of textbooks used in your mathematics and mathematics education courses in the enclosed return envelope. We realize that it will take some time to complete this questionnaire. However, we believe that your time will be well spent if the preparation of secondary school mathematics teachers in Illinois is improved.

Thank you very much for your time. We are sure you will be interested in the results of this survey and so we will send you a copy when they are available.

Sincerely,

Lewis H. Coon, Eastern Illinois University
Katherine Pedersen, SIU-Carbondale
John C. Peterson, Eastern Illinois University

P.S. The numerals in the right margin of the questionnaire are to assist in computer compilation of data.

ILLINOIS COUNCIL ON MATHEMATICS EDUCATION

September 25, 1974

ICME

Member Institutions

Augustana College
Aurora College
Chicago State University
Concordia Teachers College
DeLourdes College
DePaul University
Eastern Illinois University
Elmhurst College
Eureka College
Illinois Benedictine College
Illinois State University
Illinois Wesleyen University
Knox College
Lake Forest College
McKendree College
Millikin University
Monmouth College
Northeastern Illinois University
Northern Illinois University
Northwestern University
Principia College
Quincy College
Rockford College
Roosevelt University
Sangamon State University
Southern Illinois University
Southern Illinois University - Edwardsville
Trinity Christian College
University of Chicago
University of Illinois at Chicago Circle
University of Illinois
Western Illinois University

Representation from

Office of Superintendent of Public Instruction, State of Illinois
Illinois Council of Teachers of Mathematics
Illinois Section of Mathematical Association of America

The Illinois Council on Mathematics Education (ICME) is an organization whose purpose is to identify interinstitutional problems affecting mathematics education, disseminate information about these problems, and recommend ways in which these problems may be solved. One of our areas of concern is the preparation of secondary school mathematics teachers.

Last April a questionnaire was mailed to all ICME member schools. The results of the questionnaire are to be made available at the ICTM meeting November 8-9, 1974 in DeKalb.

As yet we have not received a completed questionnaire from your school. Since the questionnaire was mailed the latter part of April it undoubtedly became misplaced during the end-of-the-year activities. Enclosed is another copy of the questionnaire. In order to make our report complete we need a copy of the questionnaire returned from your institution. Your work in completing the questionnaire will be reduced if you Xerox a copy of the catalog pages of mathematics and mathematics education courses, a list of textbooks used in these courses, and copies of the syllabi for any secondary school mathematics methods courses in the enclosed return envelope. We realize that it will take some time to complete this questionnaire. However, we believe that your time will be well spent if the preparation of secondary school mathematics teachers in Illinois is improved.

Thank you very much for your time. We are sure you will be interested in the results of this survey and so we will send you a copy when they are available.

Sincerely,

Lewis H. Coon, Eastern Illinois University
Katherine Pederson, SIU-Carbondale
John C. Peterson, Eastern Illinois University

P.S. The numerals in the right margin of the questionnaire are to assist in computer compilation of the data.

Enc.

ILLINOIS COUNCIL ON MATHEMATICS EDUCATION
SECONDARY MATHEMATICS EDUCATION SURVEY

1. Name of institution _____ 1,2

2. Local contact person for mathematics education _____

Address _____

_____

Telephone Number _____ - _____
area code

3. a. Number of fulltime equivalent faculty in mathematics department _____ 3,4

b Number of fulltime equivalent faculty in mathematics education (i.e. their primary responsibility is in mathematics education). _____ 5,6

c. Are the teachers in 3b a subset of those in 3a? _____ 7

d. Is the intersection of the teachers in 3a and 3b the empty set? _____ 8

4. Is your mathematics methods course taught in the mathematics department? _____ yes/no 9.

5. Number of secondary teachers approved for certification in math in 1973 _____ 10,11

1972 _____ 12,13

1971 _____ 14,15

1970 _____ 16,17

6. Number of fulltime students enrolled at your institution Fall 1973 _____ 18-22

7. Number of undergraduate mathematics majors, excluding those in mathematics education, in 1973 _____ 23-25

1972 _____ 26-28

1971 _____ 29-31

1970 _____ 32-34

8. Number of undergraduate mathematics education majors in 1973 _____ 35-37

1972 _____ 38-40

1971 _____ 41-43

1970 _____ 44-46

9. What mathematics courses are required of mathematics education majors? (Please attach syllabi, course outlines, copy of catalog descriptions, and text in use (title, author, and publisher).) Please put only the course numbers in the space below.

10. a. Which of the courses in item 9 are not accepted for credit toward a straight mathematics major?

b. Which of the courses in item 9 are not required for credit toward a straight mathematics major?

11. What is the total number of semester hours in mathematics required of mathematics education majors? _____ 47,48

What is the lowest numbered mathematics course accepted for a mathematics education major? _____

What is the highest numbered mathematics course accepted for a mathematics education major? _____

12. Do you offer a minor in mathematics education? _____ 49

Total number of hours required _____ 50,51

Required courses (list course numbers only):

13. When is a student formally recognized as being in mathematics education?

If this admittance to the teacher education program is formal,

a) What grade-point average is required? _____ 52-54

b) What courses must a student have completed?

c) What personality traits do you consider?

d) What counseling do you provide?

e) Who is responsible for making such a decision based on non-quantitative information?

f) Is admittance competency-based? _____ What parts are competency based? 55

What forms of evaluation do you use?

14. What are the requirements for a student to be allowed to student teach in mathematics? (See items a-f in question 13.)

a) _____ 56-58

b)

c)

d)

e)

f) 59

15. What education, psychology and/or educational psychology courses are required of mathematics education majors? (Please attach catalog descriptions.) List only course numbers below.

16. What additional requirements (cf. questions 9, 13, 14, 15) must a student satisfy before he can be a certified secondary school mathematics teacher?

17. What field experience outside of student teaching is provided for mathematics education students? (Please describe the nature of the experience, its length, credit hours (in mathematics or education), is it required, supervised (if so, by whom), evaluation, etc.)

18. Describe the student teaching experience provided for the mathematics education student.

a) Number of semester hours of credit _____ 60,61

b) Number of classes taught _____ 62

c) Number of weeks duration _____ 63,64

d) Role of mathematics department

e) Supervisor comes from (mathematics, education, joint math/ed) dept. _____ 65

f) High school cooperation teacher selected by (math, ed, math/ed) dept. _____ 66

g) Etc.

19. When a student takes his mathematics methods course

a) Number of semester hours credit _____ 67

b) Total number of class meetings _____ 68,69

c) Total number of lecture/recitation meetings _____ 70,71

d) Total number of laboratory class meetings _____ 72,73

e) Total number of meetings in school classrooms _____ 74,75

f) Is the course taught in the (mathematics, education, math/ed) dept. _____ 76

g) What unique experiences in this course do not occur in other required mathematics or education courses at your institution?

20. Indicate:

Masters given through the mathematics department _____ 77

Masters given through the education department _____ 78

Doctorate given through the mathematics department _____ 79

Doctorate given through the education department _____ 80

APPENDIX 3

Unusual Catalog Descriptions

ICME SURVEY ON PROGRAMS FOR THE PREPARATION OF SECONDARY MATHEMATICS TEACHERS

UNUSUAL CATALOG COURSE DESCRIPTIONS

CONCORDIA TEACHERS

MAT 484 PROBLEM SOLVING IN MATHEMATICS — 4 hours
Problem solving techniques will be studied and applied to natural phenomena, games, and puzzles. Through class discussions of principles of problem solving tactics, the student will gain skill in his ability to solve problems and teach problem solving. Some in-school involvement.

MAT 482 THE MATHEMATICS LABORATORY & LABORATORY ACTIVITIES — 4 hours
Interim
Working through existing math lab activities; selecting and developing lab activities; considering various implementation options; and visiting existing math labs will be included in the workshop format. Cross-listed with EDU-482.

DE PAUL UNIVERSITY

EDU 095 LABORATORY EXPERIENCE WITH CHILDREN & YOUTH — 0 hours
Required of all students. Observations and participation experiences with children and youth in a school or social agency. This course is a prerequisite for student teaching and related professional courses.

ILLINOIS STATE UNIVERSITY

MAT 202 MATHEMATICS FOR THE JUNIOR HIGH SCHOOL — 2 hours
Structure of rational numbers and integers, real numbers, geometry and measurement solution sets for open sentences, ratio and proportion.

MAT 302 MATHEMATICAL TOPICS FOR JUNIOR HIGH TEACHERS — 2 hours
Problems, viewpoints and trends in teaching junior high school mathematics. Implication of logic and foundations of mathematics for teaching in this field.

MAT 303 DIAGNOSIS AND REMEDIATION OF ELEMENTARY MATH LEARNING PROBLEMS — 3 hours
Analysis of Diagnostic and Remediation Procedures utilizing concrete materials for children experiencing difficulties in elementary school mathematics.

MAT 362 COMPUTER-EXTENDED MATHEMATICS FOR SECONDARY SCHOOL — 3 hours
Techniques of illustrating, deriving, and discovering mathematical concepts of the secondary curriculum by digital computer.

UNUSUAL CATALOG COURSE DESCRIPTIONS

NORTHEASTERN ILLINOIS UNIVERSITY

22-121 FOUNDATIONS OF MATHEMATICS — 5 hours

Logic and axiomatics of mathematics; basic set theory, development of the rational numbers from Peano's axioms.

NORTHERN ILLINOIS UNIVERSITY

MAT 95 HIGH SCHOOL ALGEBRA — 0 hours

For students who enter college with no credit in high school algebra. Equivalent to the first year of high school algebra. Offered when needed by 20 or more students and when staff permits. Although no credit is given for this course, it counts as 3 semester hours toward class load.

MAT 98 INTERMEDIATE ALGEBRA — 0 hours

For students with two or more years of high school mathematics who have at least average scores on the selective entrance examination and whose programs include subsequent courses in mathematical sciences. Prerequisites: One year of high school algebra and one year of high school geometry.

MAT 410 CURRICULUM AND INSTRUCTION IN JUNIOR HIGH SCHOOL MATHEMATICS — 3 hours

The aims and organization of materials for the mathematics programs of the junior high school. Accepted as mathematical sciences credit only for those preparing to teach. Prerequisites: MAT 353 and EDU 302 or 375.

MAT 412 CURRICULUM AND INSTRUCTION IN SECONDARY SCHOOL MATHEMATICS — 3 hours

The aims and organization of materials for the mathematics programs of the secondary school. Accepted as mathematical sciences credit only for those preparing to teach. Prerequisites: MAT 353 and EDU 302.

MAT 416 SPECIAL TOPICS IN MATHEMATICS — 3 hours

Selected topics in mathematical sciences. Offered first- and second-half semester. This course is open only to students preparing to teach mathematics in the secondary school. Prerequisite: MAT 240 or 233 or equivalent.

UNUSUAL CATALOG COURSE DESCRIPTIONS

SIU CARBONDALE

MAT 319E-1 MODERN ALGEBRA AS APPLIED TO THE SECONDARY SCHOOLS

Two hours per week. The applicability of the concepts of modern algebra, particularly the field axioms and the function concept, to the secondary curriculum. Prerequisite: concurrent enrollment in 319.

MAT 352E ANALYSIS AS APPLIED TO THE SECONDARY SCHOOL

Two hours per week. Sequences, series, infinite decimals, continuity. Applications to the secondary curriculum. Prerequisite: concurrent enrollment in 352. Elective Pass/Fail.

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MAT 305 TOPICS IN MODERN MATHEMATICS FOR TEACHERS