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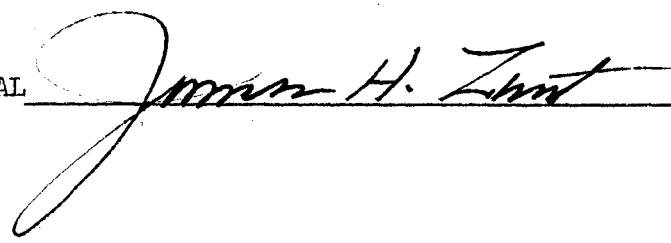
Candidate for Degree of Master of Science

Major Field: Natural Science

Scope and Method of Study: The state requirements for a teaching certificate in mathematics in each of the fifty states was compared and analyzed. The requirements compared were the number of hours needed in general education, number of hours needed in professional education, and the number of hours needed in the field of mathematics to teach it full time or part time. The types of certificates that could be obtained to teach mathematics were compared. The material used in this study was obtained from the State Department of Education of each of the states.

Findings and Conclusions: In the field of mathematics, the number of hours required to teach mathematics full time range from 40 to 12. The average is 20 hours. The number of hours required to teach it part time range from 24 to 6. The average is 16 hours. The number of hours in professional education required range from 27 to 12. The average is about 19 hours. The types of certificates issued to mathematics teachers by the states may be classified under 3 categories. (1) According to the term, or duration of validity such as life, permanent, limited continuing, and provisional. (2) According to levels of preparation: the terms used here are usually regular, standard, professional emergency, or substandard. (3) According to authorization of teaching position or assignment: the types here are usually blanket or general (with no area, teaching fields, or subjects specified on certificate): endorsed (each authorized teaching area, field, or subject is endorsed on certificate). A total of 20 states issue life or permanent certificates and 16 states issue blanket or general high-school certificates.

ADVISER'S APPROVAL



A COMPARISON OF THE STATE REQUIREMENTS FOR
A TEACHING CERTIFICATE IN MATHEMATICS
IN EACH OF THE FIFTY STATES

By

RONALD JAY JOHNSON

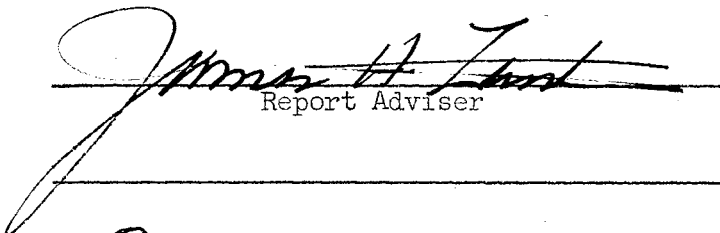
Bachelor of Science
Northeastern State College
Tahlequah, Oklahoma

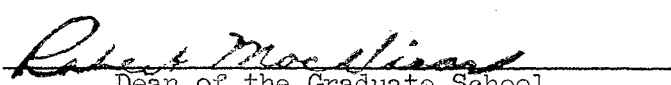
Master of Science
Oklahoma State University
Stillwater, Oklahoma
1960

Submitted to the faculty of the Graduate School
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the degree of
MASTER OF SCIENCE
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A COMPARISON OF THE STATE REQUIREMENTS FOR
A TEACHING CERTIFICATE IN MATHEMATICS
IN EACH OF THE FIFTY STATES

Report Approved:


Report Adviser


Dean of the Graduate School

PREFACE

We teachers of today are faced with the problem of providing for our students instruction which will help prepare them to live in a world which is yet scarcely even dreamed of. We cannot hope to prepare them adequately for twenty-first century living without ourselves being adequately prepared.

The influential factor underlying the choice and pursuit of this report was a desire to make mathematics teachers aware of their qualifications. It was this writer's opinion that one way to do this was to give the mathematics teacher a source of information against which he might compare his qualifications.

Since most of the teachers of mathematics in a state must meet the requirements of that state in order to teach, this writer compiled the state requirements to teach mathematics in each of the fifty states as a criteria to be used in comparing one's qualifications with those of teachers of other states.

It is the sincere desire of this writer that some teacher may better his education after reading this report and becoming aware of his inadequacies.

Indebtedness is acknowledged to Dr. James H. Zant for his guidance in the writing of this report, to the office personnel for their help in obtaining the information used in the report, and to Academic Year Institute members for their suggestions and encouragement.

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CHAPTER I

INTRODUCTION

Purpose: When the Russians launched Sputnik I a wave of apprehension ran among Americans about the adequacy of their schools. The resultant furor sparked a new wave of criticism of teacher-education and certification requirements.

Perhaps the re-examination and revision of teacher-education programs---and there is considerable evidence that extensive revision is in progress---has not yet had time to be reflected in changed certification specifications and procedures. But there is evidence, too, that such revision is in progress. In reading through the teaching requirements of the different states, it was found that 33 states report that intensive restudy of certification is under way indicating the dynamic nature of the re-examination now in progress. It is evident that state education legal authorities are not being stampeded into precipitate action. It is equally evident that they are moving to overhaul requirements consonant with new, clearly evident needs.

For example, there have been some demands that legal certification of teachers be abolished. Others have called for retention of the legal licensure but for abolition of most or all of the professional requirements. And there have been proposals to establish national certification in some fields by nonlegal boards or committees and to finance such certification with federal funds. None of these as yet have transpired and do not, at the moment, seem likely to take place in the near future.

One state department pointed out that a few attempts have been made to enact legislation to abolish or to reduce drastically professional requirements in certification procedures. None of these has succeeded fully. More significant, perhaps, than attempts to abolish professional requirements is the interest reflected in a few legislatures toward instituting some kind of examination designed to measure teacher competence.

Another significant development pointing to higher standards for teaching, which may ultimately have considerable impact upon teacher education and certification, is the movement toward establishing prerequisites for membership in professional associations. The state education associations in Kansas, Maine, Maryland, and Michigan have established the Bachelor's Degree level of preparation as the minimum for new members; Connecticut and Washington have this in process.

All states but one (Arkansas, which in 1960 will begin doing so) are now enforcing the minimum requirement of the degree for all high school teachers. A total of 48 of the 50 states are now enforcing the Bachelor's Degree as the minimum for the lowest regular certificate issued to beginning high school teachers. Five states (Connecticut, Indiana, New York, Oregon, and Washington) mandate completion of a fifth college year of preparation within a specified number of years (five years in two states and ten years in three) after initial teaching service.

Teachers must be aware of this new revision of teacher-education programs. The main purpose of this report is to enable a mathematics

teacher to re-examine his credentials and compare them against those in the different states.

CHAPTER II

CERTIFICATION REQUIREMENTS FOR MATHEMATICS TEACHERS

The materials in this chapter are arranged by states in alphabetic order. In most cases the general requirements are set forth first. They are not repeated for each type of certificate issued. The name and address of the director of certification for each state is given and additional information may be had by writing them.

Certain requirements and practices were found to be so common that it did not seem desirable to repeat them. The following are of this type:

1. Most states set forth their course requirements in "semester hours" of credit. A few states use "quarter hours." Where the word "hours" is used in this report it means semester hours.

2. All states require that credits and degrees presented as a basis for certification be from institutions approved by some official accrediting body. Each state sets its own standards regarding the institutions whose credits and degrees it will honor.

3. When credit hours or experience are set forth as conditions for certificates or renewals, there is an implied responsibility for the applicant to validate the credit or experience by transcript, signed statement, or other appropriate means.

4. Practically all states expect applicants to use official state forms in making application for a certificate. It would be wise to write

the state director of certification for the official application form.

5. Some states specify that fees for granting certificates must be paid by money order or by cashier's check. Applicants should remit by one of these two means.

ALABAMA

State Certification Officer: W. Morrison McCall

Director, Division of Instruction

State Department of Education

Montgomery, Alabama

General Requirements: The minimum age is 17. There is a \$2.00 fee for all certificates and renewals. Class B certificates issued for term of 8 years, renewable on completing 8 hours of approved graduate or 10 hours of approved undergraduate credit, or 4 years approved teaching experience. Class A certificates issued for term of 10 years, renewable on completing 8 hours of approved graduate or 10 hours of approved undergraduate credit, or 5 years approved teaching experience.

Requirements for Class B Secondary Professional Certificate

A Class B Secondary Professional Certificate, valid for periods of eight years, may be issued to a person who presents credentials showing:

1. That he has graduated with a Bachelor's Degree from a standard institution and has met requirements as prescribed by the Alabama State Board of Education for the training of secondary teachers;
2. That he has earned prescribed credits as follows:

Subjects

Semester Hours

Education

24

Psychology

6-10

Principles and Philosophy	3 - 6	
Materials and Methods of Teaching Mathematics in High School	2 - 6	
Directed Teaching of Mathematics in High School	0 - 10	
English		12
Social Studies		12

Must include course which have a credit value of at least 3 semester hours in two of the following fields: History, Economics, Political Science, Sociology, or Geography.

Science (Biological and Physical)	12
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3. To teach mathematics full time you must have a major in it which consists of 24 hours.
4. To teach mathematics part time you must have a minor in it which consists of 18 hours.

Requirements for Class A Secondary Professional Certificate

A Class A Secondary Professional Certificate may be issued to a person who has graduated with a Master's Degree from a standard institution in a curriculum approved for the training of teachers and who has met all professional and academic requirements for the Class B Secondary Professional Certificate.¹

¹Requirements for Class B Secondary Professional Certificate, State Department of Education Circular (Montgomery, 1959).

ALASKA

State Certification Officer: Mrs. Leah W. Macchia
Certification and Placement Supervisor
Department of Education
Juneau, Alaska

General Requirements: The minimum age is 19. There is a \$2.00 fee for all certificates and renewals. One is required to have a certificate and it must be recorded in the office of commissioner. The initial certificate is issued for terms of 5 years and renewable on payment of fee and recommendation of previous administrator.

To teach mathematics in Alaska one must have at least a Bachelor's Degree of which 16 hours is in education with 4 hours in practice teaching and 3 in methods of teaching. If he has completed 3 years of teaching in a public school he may substitute such experience for practice teaching; however, such teacher shall have completed a total of 16 hours in education. He must have a minimum grade average of "C" of all college work and the last 6 hours presented for certification purposes shall have been earned within 6 years immediately preceding the date of application. If this is the only requirement he cannot meet, a provisional certificate effective for one year can be issued. He must have 16 hours of mathematics to teach the subject full time or part time.²

The two types of certificates one may obtain is a high school certificate by meeting the requirements stated above and a life certificate which may be obtained with a Master's Degree.

²Certification Requirements for Teachers, State Department of Education Circular, Article VIII (Juneau, 1957), p. 3.

ARIZONA

State Certification Officer: Otto Skill

Director of Teacher Education and Certification

State Department of Public Instruction

Capitol Building

Phoenix, Arizona

General Requirements: The minimum age is 18. There is a \$4.00 fee for all certificates and a renewal fee of \$2.00. Certificates required of all high school teachers and they must be recorded in office of county school superintendent. Initial certificates issued for terms of 4 years and renewable for 6 years upon completion of 5 additional hours of study in approved institution.

Rules and Regulations for Secondary Certificates

- A. Secondary Certificates shall be granted to holders of the Master's Degree from the University of Arizona or the Arizona State College or from any other accredited university or college authorized to prepare teachers.
- B. Requirements include:
- (1) A major of not less than 24 semester hours and a minor of not less than 15 semester hours in fields or subjects usually taught in high schools. To teach mathematics full time he needs only 15 hours.
 - (2) 18 semester hours in Education appropriate to secondary school teaching, including preparation in the following areas:
 - Educational Psychology
 - Evaluation of Learning (tests and measurements)

High School Teaching Methods

Curriculum and Principles of Secondary Education

Not less than 6 hours of directed practice teaching
in grades 7 to 12, inclusive

Not less than 6 hours of graduate work in the fields
of Education

School and Community Health

United States and Arizona Constitutions

C. This certificate is valid in grades 7 to 12 for 4 years. Any applicant for a certificate must furnish evidence that:

At least five hours of college work offered as a basis for certificate have been procured within the four years immediately preceding application for said certificate.³

For a high school mathematics teacher Arizona issues only this one type of certificate.

ARKANSAS

State Certification Officer: Ed McCuiston

Assistant Commissioner of Inst. Services

Department of Education

Little Rock, Arkansas

General Requirements: The minimum age is 18. This state has a maximum age of 72. Certificates required of all high school teachers and they must be filed with the appropriate county supervisor of schools. A health statement from ones physician must be filed with the school

³Rules and Regulations for Secondary Certificates, State Department of Public Instruction (Phoenix, 1958).

superintendent.

To teach mathematics in grades 7 through 12 one must have a Bachelor's Degree and his special methods and student teaching must be in mathematics. A total of 18 hours of mathematics entitles one to teach it full time and with 15 hours he can teach it part of a school day.⁴

CALIFORNIA

State Certification Officers: George E. Hogan

Deputy Superintendent and Chief

State Department of Education

Sacramento 14, California

General Requirements: The minimum age is 18. There is a \$4.00 fee for all certificates and a renewal fee of \$2.00. Certificates required of all high school teachers and they must be recorded in the office of county superintendent. The initial certificate issued for terms of 2 years and renewable for 5 years.

California does not have special secondary credentials for teaching in the basic subjects. The general secondary credential authorizes the holder to teach any and all subjects to which he may be assigned. Most superintendents would expect a person teaching mathematics to have a major in it as described for the credential. For the general secondary credential, the major is 36 hours of mathematics and applied mathematics. Below are listed the requirements for this credential.

⁴Arkansas Standards for State Certification of School Personnel, State Department of Education (Little Rock, 1959).

General Secondary Credential

Application. An applicant for the general secondary credential shall have completed a program including the following minimum requirements:

- (a) A four year college course with a Bachelor's Degree.
- (b) One year of thirty hours of postgraduate work of upper division or graduate level or a year of postgraduate preparation which an accredited institution certifies as fulfilling institutional requirements for a post-graduate year of work. This work shall include:
 - (1) Six hours in professional education courses.
 - (2) Six hours in subject fields commonly taught in junior and senior high schools.
- (c) Forty hours of general education with a minimum of six hours in each of the following four areas:
 - (1) Science and mathematics
 - (2) The practical arts and the fine arts.
 - (3) Social studies.
 - (4) The communicative arts such as languages, literature, speech arts, and similar fields.
- (d) Twenty-two hours of professional work in education including the following areas:
 - (1) The scope and function of the secondary school.
 - (2) Growth and development; the learning process; mental hygiene or personality development.
 - (3) Counseling and guidance.
 - (4) Curriculum; methods; evaluation of instruction at the secondary level.

- (5) Six hours of directed teaching. At least one-half of this requirement shall be completed by teaching any grade from seven through twelve. Successful teaching experience in public schools or in private schools of equivalent status may be substituted for directed teaching at the rate of one year of full-time teaching for one-half of the requirement.
- (e) One major and one minor in teaching fields commonly taught in California senior high schools, or a major in a field not commonly taught and two minors in acceptable teaching fields. The minimum requirement for a major shall be thirty-six hours and for a minor shall be twenty semester hours.⁵

COLORADO

State Certification Officers: Otto G. Ruff

Director of Teacher Education

State Department of Education

Denver, Colorado

The state of Colorado issues a blanket high-school certificate which does not control the subject matter which may be taught. This is done through the accreditation of either the State Department or North Central Association. Below are listed the requirements for this certificate.

⁵Title 5, Education, California Administrative Code, (Sacramento, 1954), Chapter 1, Subchapter 2, Article 6.

General Requirements: The minimum age is 18. There is a \$4.00 fee for in-state applicants and a \$5.00 fee for out-of-state applicants. Certificate required of all high school teachers and they must be recorded with the appropriate county superintendent of schools.

Graduate Temporary Certificate

(Valid for five years for teaching any subject in any school in Colorado-----required for secondary teaching.)

In order to qualify for a Graduate Temporary Certificate the applicant must hold an A.B. or equivalent degree from an accredited college, with 20 hours of credit in Education distributed among at least three of the following groups, one of which must be practice teaching:

(a) General and Educational Psychology; (b) Principles of Education; (c) History of Education; (d) Administration and Supervision of Education; (e) Practice Teaching; (f) Special Methods; (g) Philosophy, Sociology, Anthropology, Biology, Political Science.

NOTE: The maximum amount of credit allowed in group (g) is six and two-thirds hours.

Four hours of practice teaching are required. Twenty-seven months of successful teaching experience may be substituted for practice teaching credit when properly certified to the Commissioner of Education.⁶

If you hold this certificate the only other requirement to teach mathematics is 15 hours of mathematics with 5 hours of it being in the subject you teach.

⁶The Law Governing the Issuance of Certificates, State Department of Education Bulletins (Denver, 1959).

CONNECTICUT

State Certification Officer: Willis H. Umberger
Bureau of Federal-State-Local Relations
State Department of Education
Hartford, Connecticut

General Requirements: The minimum age is 18. There is no fee for the certificate. Certification is required of all professional personnel in the public schools but is not required of nonpublic schools. These are issued by the State Department of Education through certification office, where all certificates are recorded. The initial certificate is issued for a term of 5 years, renewable for 5 years on evidence of successful experience. One must qualify for a standard certificate at the end of 10 years, including the fifth year for standard teaching certificate.

The requirements to teach mathematics is a Bachelor's Degree, including 45 hours of general education (in addition to teaching field, and including 6 hours in English and social studies, including United States history). One must have 18 hours of professional education which includes foundations of education, educational psychology, curriculum and methods, and 6 hours of student teaching. The applicant must have 18 hours of mathematics but a provisional certificate may be granted on the basis of 12 hours of mathematics including calculus. Additional content preparation must be completed before issuance of standard certificate.⁷

⁷Teaching Certificate---Secondary, State Department of Education Bulletin (Hartford, 1959).

DELAWARE

State Certification Officer: Elizabeth C. Lloyd

Director of Teacher Education and
Professional Standards

State Department of Public Instruction

Dover, Delaware

General Requirements: The minimum age is 20 and the maximum age is 70. There is no fee for the certificate. Certification is required of all high school teachers. The initial certificate is issued for a term of 5 years in one's teaching field and this may be converted to a Professional Status Certificate, issued for 5 years, upon completion of 3 years of teaching experience in Delaware in area covered by certificate.

This certificate may be granted to an applicant who is a graduate of a standard college or university, provided that he has had at least 18 hours work in the aims and methods of secondary education, which may include psychology (not to exceed 6 hours), philosophy of education, principles of secondary education, and practice teaching of high school branches to the extent of six hours. Twenty-four hours of mathematics is required.⁸

FLORIDA

State Certification Officer: M. Mitchell Ferguson

Division of Teacher Education

State Department of Education

Tallahassee, Florida

⁸ A High School Teacher's Certificate in Academic Subjects, State Department of Public Instruction Bulletin (Dover, 1959).

General Requirements. The minimum age is 20. There is an initial fee of \$5.00 for the certificate. Certificate is required of all high school teachers. Initial certificates are issued for a term of 5 years with an extension for 5 years upon completion of 6 hours of college training in accredited four-year institution.

The requirements to teach mathematics is a Bachelor's Degree, including 45 hours of general education with 6 to 12 hours each in english, science and mathematics, social studies, human adjustment, and humanities and applied arts. One must have 20 hours in professional education of which 6 must be in curriculum and materials of instruction, 6 in psychological and sociological foundations of education, 2 hours in special methods and 6 hours in student teaching. To teach mathematics full time one must have 30 hours and to teach it part time 15 hours.⁹

GEORGIA

State Certification Officer: John J. Medlin, Jr.

Supervisor of Certification

State Department of Education

Atlanta 3, Georgia

General requirements: The minimum age is 18. There is no fee unless applicant is an out-of-state applicant which has to pay a fee of \$1.00. Certification required of all high school teachers. The types of certificates are the Professional Five-Year Certificate valid 7 years; Provisional Special Graduate Certificates valid 3 years; Professional

⁹Florida Requirements for Teacher Education and Certification, State Department of Education Circular (Tallahassee, 1951).

Four-Year Certificates valid 5 years; Provisional Two-, Three-, and Four-Year Certificates valid 1 year. These may be renewed for the same terms based upon 6 hours of study. The Professional Special Certificates may become Life Certificates after 5 years of experience.

To teach mathematics one must have a Bachelor's Degree with 40 hours of general education. He must have 20 hours of mathematics with 12 hours of it being pure mathematics in order to teach it full or part time.¹⁰

HAWAII

State Certification Officer: Earl L. McTaggart

Deputy Superintendent

Department of Public Instruction

Honolulu, Hawaii

General Requirements: Certificates required of all public-school teachers. The certificate issued is the Professional Teacher's Certificate, valid without renewal during continuous service of holder, requires completion of the Bachelor's Degree, plus 30 hours of college credit, including a minimum of 24 hours in education at least 6 of which are graduate-level courses. One must also have 12 hours in courses on problems of secondary education and adolescent psychology. Required is 24 hours of mathematics at the college level and a course in teaching of mathematics. Of this 24 hours there must be a course in trigonometry and solid geometry.¹¹

¹⁰Requirements, and Regulations for the Certification of Teachers and School Leaders, State Department of Education (Atlanta, 1959).

¹¹Summary Information Regarding Certification of Teachers in the Public Schools of Hawaii, State Department of Education Bulletin (Honolulu, 1959).

As this is the only certificate issued all the information was put under general requirements.

IDAHO

State Certification Officer: Ross E. Barney

Assistant State Superintendent of
Public Instruction

State Department of Education

Boise, Idaho

General Requirements: Applicant must not be less than 18 years of age. There is a \$5.00 initial fee and a \$5.00 renewal fee for all certificates. Certificates are required for all high school teachers and they must be recorded annually in office of district or county superintendent.

To teach mathematics one must have a Bachelor's Degree from an accredited college or university and meet the following specific requirements.

1. A minimum of twenty semester hours in education applicable to secondary education which must include:
 - a. Six hours of secondary practice teaching. Three years teaching experience may be substituted for the practice teaching requirements.
 - b. Three hours in methods and materials of instruction in the secondary school.
 - c. Three hours of educational psychology or child growth and development.
 - d. Three hours in foundations of education.

2. Preparation in at least two fields of secondary teaching---
 a major subject and a minor subject of at least fifteen hours
 each. In mathematics one must have credit in algebra, geometry,
 and trigonometry included in the fifteen hours.

Meeting the requirements just stated would qualify one for a Standard Secondary Certificate. The Advanced Secondary Certificate may be obtained with a Master's Degree which includes eight hours in educational subjects, and eight hours in a teaching field or area of educational service. This certificate is valid for five years and is renewable without additional training.¹²

ILLINOIS

State Certification Officer: Aaron Brien

State Teacher Certification Board

105 State Office Building

Springfield, Illinois

General Requirements: This state has a minimum age of 19. A fee of \$1.00 charged for issuance of certificate, payable to county superintendent. Also, before beginning teaching each year, teachers are required to register certificates with county superintendent, paying a \$2.00 registration fee.

A person may teach mathematics in this state under one of two types of certificates. A Limited State High School Certificate is issued valid for four years to teach in high school, renewable in periods of four years upon successful teaching satisfactory to the county

¹²Certification of Teachers and Administrators, State Board of Education Circular (Boise, 1958).

superintendent of schools. This certificate may be issued to graduates of a recognized college with a Bachelor's Degree, who present certified evidence, accompanied by faculty recommendation, of having earned the following credentials:

	Hours
I. General Education	35
a. English, including oral and written expression.	8
b. Natural Science	6
c. Social Science	6
d. Humanities	6
e. Health and Physical Education	3
f. Additional work in any above field	6
II. Education (Professional)	16
a. Adolescent growth and development	2 or 3
b. Philosophy of Education	2 or 3
c. Student Teaching	5
d. Methods of Teaching	2 or 3
e. American Public Education	2 or 3
f. Electives in professional education	3
III. Electives	21
IV. One Major (area of specialization)	32
V. One Minor (area of specialization)	16
TOTAL	120

A person could teach mathematics under the above certificate with 16 hours of mathematics. Credit may be allowed to the extent to two hours for each half unit of mathematics earned in high school above the elementary courses in General Mathematics, Algebra, and Plane Geometry not to exceed a total of six hours. Duplicate credit for a high school course repeated in college is not acceptable. After September 1, 1961, no credit will be allowed for high school mathematics unless such credit is approved by a higher institution and is noted on the official transcript.

A Limited State Special Certificate to teach mathematics can be obtained with 36 hours of mathematics. This state also has the provision that an applicant for a high-school certificate may be authorized to teach mathematics with a minimum of 8 hours if he has completed a major in the field of natural science.¹³

INDIANA

State Certification Officer: Ernest A. Smith

Division of Teacher Training and Licensing
State Department of Public Instruction
Indianapolis, Indiana

General requirements: This state has no minimum age but has a fee of \$1.00 for the certificate. Certificates required of all teachers and they must be filed with superintendent of the employing corporation.

To teach mathematics one would need a Bachelor's Degree from a standard university or college with a minimum of 124 hours distributed

¹³Minimum Standards of Teacher Preparation, State Department of Education Circular Series A, No. 121 (Springfield, 1958).

according to the following general pattern:

General Education	30 hours
Professional Education.	18 hours
Comprehensive Area...	40 hours
Restricted Area	24 hours
Electives	12 hours

If one's comprehensive area is mathematics of which he has 40 hours he may teach it full time and if it is his restricted area of 24 hours it may be taught part time.

Meeting the requirements stated would qualify one for a Provisional Secondary Certificate which is renewable, and upon completing a Master's Degree and 5 years of successful teaching experience is convertible to First Grade Secondary Certificate, which, in turn, upon completing 5 additional years of successful teaching experience subsequent to date of issuance of First Grade Certificate, is convertible to a Permanent Certificate.¹⁴

IOWA

State Certification Officer: Wayland W. Osborn
 Director, Division of Teacher Education
 State Department of Public Instruction
 Des Moines 19, Iowa

General Requirements: The minimum age is 18. There is a \$2.00 fee for the initial certificate and \$2.00 for each renewal. Certificates are required of all high school teachers and they must be recorded in office

¹⁴Standards for Secondary Teachers' Certificates, State Department of Education Bulletin 192 (Indianapolis, 1959).

of county superintendent. You must have 2 hours of American Government or history. Initial certificate is issued for a term of 10 years and renewable for 10 years upon completion of 6 hours of study in an approved institution of 1 year of successful teaching experience.

The requirement to teach mathematics is 15 hours of mathematics. One semester hour of credit is given for advanced algebra, trigonometry, or solid geometry pursued in high school with a maximum of 3 semester hours. With only 12 hours of mathematics one is allowed to teach it part of a school day.

A teacher of mathematics would teach under a Professional Certificate or a Permanent Professional Certificate. The requirements for a Professional Certificate are 4 years of approved college preparation and a Bachelor's Degree from a recognized institution. A holder of a Professional Certificate has to have 4 years of successful teaching experiences and 30 hours of approved preparation beyond the Bachelor's Degree. After August 31, 1960, the 30 hours of approved preparation shall be graduate credit and a Master's Degree from an accredited institution shall have been awarded to the holder.¹⁵

KANSAS

State Certification Officer: F. Floyd Herr

Director of Certification

State Department of Public Instruction

Topeka, Kansas

¹⁵ Certification and Approval of School Personnel, State Department of Education Bulletin No. 32 (Des Moines, 1957).

General Requirements: In this state no minimum age is specified. There is a \$3.00 fee for the initial certificate and \$3.00 for renewal or additional certificates. A "C" average is required in college work submitted for certification or renewal. Certificates are required and it must be registered with county superintendent.

The state issues a Secondary Certificate, valid for 3 years and renewable for five years, to teach mathematics in high school. The requirements for this certificate are listed below:

1. Fifty hours of general education including:

- a. Oral and written communication 6
- b. Physical and biological science 10
- c. Social Sciences. , 10
- d. Literature or language 6
- e. Physical and mental health 3
- f. Electives in music, art or any of the above areas. 15

(Provided: for purposes of distributing
electives, mathematics may be considered
as a separate area)

TOTAL 50

2. Twenty hours of professional education including:

- a. Six hours directed toward understanding the individual in the area of pupil development and learning.
- b. Six hours directed toward understanding the school.
- c. Eight hours directed toward obtaining competence in instruction at the secondary level which must include at least five hours in directed teaching.

3. Comprehensive courses may be accepted in meeting requirements in general and professional education if subject matter as indicated is included in such courses.

4. Eighteen hours in the field of mathematics to teach it full time and fifteen hours to teach it part time.¹⁶

KENTUCKY

State Certification Officer: Louise Combs

Director, Division of Teacher Education

State Department of Education

Frankfort, Kentucky

General Requirements: The minimum age is 18 and there is an initial fee of \$4.00. A certificate is required and it must be recorded with the officer of employing superintendent. The initial certificate is issued for a term of 10 years, unless otherwise specified, and is renewable for 10 years on 3 years of successful teaching experience in area covered by certificate. A standard certificate may be obtained with a Master's Degree which is issued for 10 years and subject to life extension on 3 years of experience.

To teach mathematics in this state one needs a Bachelor's Degree which includes the following:

1. Forty-five hours of general education of which 12 must be in English, 6 hours in health, physical education, and safety, and 27 hours distributed among 3 or 4 subject fields with no less than 6 hours in each field.
2. Eighteen hours of professional education with 10 hours of it being distributed among fundamentals of secondary education, organization and administration of public schools, child growth and development. The other 8 hours must be student teaching.

¹⁶
Certificate Handbook, State Department of Education Bulletin
 (Topeka, 1959).

3. A field of specialization would be mathematics and one could choose one of four options (2) 48 hours of mathematics, (b) 24 hours of mathematics but have another major of at least 24 hours, (c) 1 subject major and 1 subject minor totaling 48 hours with a minimum of 18 hours for the minor, (d) 1 subject major and 2 subject minors with a minimum major of 24 hours and a minimum minor of 18 hours.¹⁷

LOUISIANA

State Certification Officer: Mildred Baird

Supervisor of Certification

State Department of Education

Baton Rouge 4, Louisiana

General Requirements: There is no minimum age specified and no fee for certification services. Certificates are required of all professional school personnel. The initial certificate is issued for a term of 3 years and higher certificates, valid for life for continuous service, are issued upon completion of 3 years and 5 years, respectively, of successful teaching experience.

To teach mathematics in this state one would have to meet the following requirements:

A. General Education (a minimum of 46 hours).

1. English: A minimum of 12 hours.

¹⁷Teacher Education--Certification and Competencies of High School Teachers, State Department of Education Circular No. 131 (Frankfort, 1959).

2. Social Studies: A minimum of 12 hours, including at least 3 and not more than 6 hours in United States history.
 3. Science: A minimum of 12 hours, including at least 3 hours in biological science and 3 hours in physical science.
 4. Mathematics: A minimum of 6 hours (to be determined by the institution).
 5. Health and physical education: A minimum of 4 hours.
- B. Professional Education (a minimum of 18 hours which must include):
1. At least 3 hours of history of education, introduction to education, foundations of education, and/or philosophy of education.
 2. At least 3 hours in educational psychology and/or principles of teaching.
 3. At least 4 hours in student teaching.
 4. Other professional education appropriate to the level and to the field for which one is to be certified:
 - a. High school: 8 hours, including 3 hours in adolescent psychology.
- C. Special education for high-school teachers:
- The minimum requirements for certification in the field of mathematics, in addition to the general education and professional education listed above is 12 hours.¹⁸

¹⁸Louisiana Standards for State Certification of School Personnel, State Department of Education Bulletin No. 746 (Baton Rouge, 1956).

MAINE

State Certification Officer: Flora I. Brann
 Certification Officer
 State Department of Education
 Augusta, Maine

General Requirements: They have a minimum age of 17 but no fee for the certificate. Certificates are required of all teachers. Professional and Standard Certificates are issued for five-year terms. The Provisional Grade A Certificate, which is the one the applicant would obtain, is convertible to a Standard Certificate by completing 4 years of successful teaching experience and 6 hours of college credit in appropriate courses.

To teach mathematics in grades 7-12 inclusive one would have to meet the following requirements:

1. An accredited Bachelor's Degree.
2. A minimum of eighteen hours in approved general professional secondary education courses related to areas similar to those listed below, of which not more than six hours may be presented from the field of psychology, including educational psychology.

Professional Secondary Education Areas

Orientation: (including Foundations, Principles, Introductions,
 History, Philosophy)

Curriculum:

Technical: (including Methods, Observation, Student Teaching)

Psychology: (including Child Growth and Development)

General: (including Measurement, Guidance, Audio-Visual Trends,
 Educational Sociology, Administration, Supervision)

3. Evidence of established and commonly taught general academic secondary teaching fields according to either of the following patterns:

Pattern A

A minimum of eighteen hours in mathematics together with a minimum of fifteen hours in a second subject. One only needs 12 hours of mathematics if it is his minor and he has a major to go with it or only 8 hours if it is one of two minors that he has.

Pattern B

A minimum of forty hours within an area of specialization (Science and Mathematics) in which at least three common subject fields are represented.¹⁹

MARYLAND

State Certification Officer: W. T. Boston

Director of Certification

State Department of Education

Baltimore 1, Maryland

General Requirements: This state has no minimum age and no fee for the certificate. Certificates are required of all teachers and they must be recorded in the office of county superintendent. The initial certificates are issued for terms of 3 years; renewable for 4 years upon evidence of professional growth and completion of 6 hours of additional college work. After first renewal, certificates may be renewed for six-year periods.

¹⁹Certification Requirements, State Department of Education Bulletin (Augusta, 1959).

To teach mathematics in this state one would have to meet the following requirements. First, have 16 hours in education in the third and fourth years of college or later as follows:

Educational Psychology.	3
Principles of Teaching.	3
Practice Teaching	5
Electives in Secondary Education.	5
Total	<u>16</u>

The other requirement is eighteen hours of mathematics including college algebra, trigonometry, solid geometry, and analytics.

If any one or more of the first three subjects mentioned have been completed in high school, the college credit required may be correspondingly reduced, provided, however, that the mathematics courses pursued in college shall total at least 12 hours.²⁰

MASSACHUSETTS

State Certification Officer: John P. McGrail

Director of Teacher Certification

State Department of Education

Boston 16, Massachusetts

General Requirements: No fee. No person shall be eligible for employment by a school committee as a teacher unless he has been granted a certificate by the Board of Education. The certificates issued by the Board of Education under these regulations shall be permanent certificates.

²⁰Requirements for Certificates, State Department of Education Circular Vol XXXI, No. 2 (Baltimore, 1950).

To teach mathematics in this state one would have to meet the following requirements:

1. A Bachelor's Degree or a diploma from a four-year course in a normal school approved by the Board of Education.
2. Included in each candidate's program of preparation there shall be a minimum of 12 hours in education courses approved for the preparation of secondary school teachers, with not less than two hours in supervised student teaching in the secondary schools. The remaining hours in secondary education shall include appropriate courses in two or more of the following areas:

Educational Psychology, including Adolescent Growth

Philosophy of Education

Methods and Materials in Secondary Education

Curriculum Development in Secondary Education

3. At least 18 hours of preparation at the college level in the major subject field or fields and 9 hours in the minor subject field or fields.

If one's major field is mathematics it could be taught full time but if it is one's minor field then he could only teach it part of a school day.²¹

MICHIGAN

State Certification Officer: Ferris N. Crawford

²¹Teacher Certification Requirements, State Department of Education Bulletin (Boston, 1956).

Chief, Higher Education and Certification
State Department of Public Instruction
Lansing, Michigan

General Requirements: The minimum age is 18. Initial fee for out-of-state applicants, \$3.00; none for graduates of Michigan institutions. Certificates are required of all teachers and they must be recorded with the officer of county superintendent of schools. Provisional certificates issued for terms of 5 years; renewable upon presentation of evidence of 10 hours of additional satisfactory credit. Certificates become permanent upon presentation of evidence of 10 hours of additional credit plus evidence of 3 years of teaching experience.

To obtain the Secondary Provisional Certificate to teach mathematics in this state one would need a Bachelor's Degree, including a major of at least 24 hours and 2 minors of at least 15 hours. One would need 20 hours of professional education, including history or philosophy of education, principles of teaching, additional psychology, methods in major or minor subject, and 5 hours of practice teaching.

A person may qualify for teaching mathematics on this certificate with a minimum of 15 hours of credit in mathematics.

The other type of certificate which would serve to qualify a person to teach mathematics would be a Special Certificate. A Special Certificate is an emergency certificate granted only on the recommendation of a superintendent of schools who is unable to obtain the services of a fully qualified teacher. This special certificate requires a minimum of 120 hours of college credit including 15 hours of credit in professional education courses and normally it would be presumed that the applicant

would have at least a minor in mathematics.²²

MINNESOTA

State Certification Officer: F. E. Heinemann

Director of Teacher Personnel

State Department of Education

Saint Paul, Minnesota

General Requirements: This state has no minimum age. There is an initial fee of \$3.00 for all certificates except the Permanent Certificates which has a fee of \$10.00. Certificates required of all teachers and they must be recorded in the office of the county or local superintendent. Initial certificates issued for terms of 2 years; renewable up to 5 years after renewal requirements have been met; renewable for life after 5 years of experience in Minnesota, at least 1 of which must have been within the two-year period immediately preceding application.

To teach mathematics in this state one would have to have a Bachelor's Degree including 18 hours of professional education. To teach it full time would require 24 hours, a major. With only 15 hours, a minor, a person could teach mathematics part of a school day. Two hours per unit of high school credit is allowed, but not to exceed six hours.²³

²²State Secondary Provisional Certificates, State Department of Education Bulletin (Lansing, 1959).

²³Regulations for the Certification of Teachers, State Department of Education Bulletin (Saint Paul, 1959).

MISSISSIPPI

State Certification Officer: Bilbo Young

Supervisor, Teacher Education and Certification

State Department of Education

Jackson, Mississippi

General Requirements: The minimum age is 18. There is no fee for the certificate but a certificate is required and it must be registered with the appropriate county superintendent of schools.

To teach mathematics under a Class A Secondary Teacher's Certificate a person would have to meet the following requirements:

1. Bachelor's Degree from an approved college.
2. 48 hours of general education.
3. 18 hours of professional education.
4. 18 hours of mathematics to include courses in algebra, trigonometry and analytics.

There are three other types of certificates besides the Class A. These are the Class AA, Class B, and Class C. The Class AA requires a Master's Degree, the Class B only 90 hours of college work but is not issued to beginning teachers, and the Class C only 60 hours of college work but it also is not issued to beginning teachers.²⁴

MISSOURI

State Certification Officer: Paul R. Greene

Director of Teacher Education and Certification

State Department of Education

Jefferson City, Missouri

²⁴Rules and Regulations for the Certification of the Administrative and Instructional Personnel, State Department of Education Bulletin 130 (Jackson, 1958).

General Requirements: There is no minimum age or fee. Applicant must furnish health certificate to employing school district. A certificate is required of all teachers and it must be registered with the county superintendent. The University of Missouri and the state teachers colleges are authorized to grant life certificates to their graduates with Bachelor's Degrees in education.

To teach mathematics in this state the following requirements would have to be met:

1. A Baccalaurate Degree from a college accredited for teacher education.
2. Completion of 15 hours of college credit in mathematics.
3. Completion of at least 25 hours of General Education, including credits from at least three of the following fields:

English	Natural Science	Mathematics
Social Studies	Foreign Language	
4. Two years of college work in General Physical Education, with or without credit, and two hours of credit in Health and Hygiene.
5. Professional Requirements - a minimum of 18 hours in professional or Education courses as follows:
 - a. Educational Psychology.2
 - b. Hist. of Educ., Phil., of Educ., or Prin., of Educ. 2
 - c. General Methods in Secondary Teaching2
 - d. Methods in One High School Teaching Field2
 - e. Secondary School Administration2
 - f. Supervised Student Teaching in Sec. Schools . . .5
 - g. Excess or other Education credits3

If a teacher has no deficiencies in the above requirements, he is issued a five-year certificate for teaching mathematics, grades 7-12. If he has no more than four hours deficiencies in professional education, and no more than four hours deficiencies in the field of mathematics, he is eligible for a two-year certificate. These four hours of deficiencies must be removed during that period. After a person has taught mathematics in Missouri for at least three years, has no deficiencies, and verifies this information to the state department, he is entitled to a Life Certificate in Mathematics.²⁵

MONTANA

State Certification Officer: Parks Whitmer

Acting Director of Certification

State Department of Education

Helena, Montana

General Requirements: There is a minimum age of 18 and an initial fee of \$2.00 for the certificate. Certificates are required of all teachers and they must be recorded in the office of the county superintendent. The certificates are issued for a term of 5 years.

To teach mathematics in this state a person would have to meet the three requirements listed below:

1. Have at least 30 hours in a major field which is a subject commonly offered for credit in the high school curriculum.

If one's major field is mathematics he can teach it full time.

²⁵ Standards for Certificating Teachers in Secondary Schools, State Department of Education Bulletin (Jefferson City, 1950).

2. Have at least 20 hours in a minor field which is a subject commonly offered for credit in the high school curriculum.
If this is mathematics one can teach it part time.
3. Have 16 hours of professional training from the following areas:
educational psychology, principles of education, secondary school procedure, observation and student teaching.

The Standard Certificate requires the Bachelor's Degree in secondary education or an equivalent program; the Professional Certificate requires one year of study beyond the degree.²⁶

NEBRASKA

State Certification Officer: LeRoy Ortgiesen

Director of Teacher Education and Certification

State Department of Education

Lincoln 9, Nebraska

General Requirements: No minimum age specified and there is a \$2.00 fee for the certificate. Eight hours of college must have been completed within the 7 years immediately preceding date of application. Certificates are required of all teachers and they must be filed with the county superintendent.

To teach mathematics under a Nebraska Secondary Certificate one would have to meet the following requirements:

1. A Baccalaureate Degree.
2. A minimum of 18 hours with specialization in secondary education including at least 3 hours in supervised teaching.

²⁶Certification of Teachers and School Administrators in Montana, State Department of Education Bulletin (Helena, 1959).

3. A minimum of 18 hours in each of two or more generally recognized subject-matter fields. If mathematics is one of the minors then it would qualify one to teach it part of a school day. In order to teach mathematics full time a person would have to have 24 hours.

The requirements for a Professional (permanent) Secondary Certificate are the same as the Nebraska Secondary Certificate, and in addition, one of the two programs listed below:

- A. A Master's Degree, including 6 hours in education.
- B. The completion of a 30 hour program of studies beyond the Baccalaureate Degree, specifically approved for the issuance of this certificate by a recognized college that offers graduate work.

With program A or B would be needed 3 years successful teaching experience in grades seven through twelve.²⁷

NEVADA

State Certification Officer: Mrs. Helen Hughes

Teacher Certification Examiner

State Department of Education

Carson City, Nevada

General Requirements: The minimum age is 18 and the fees are as indicated for each individual certificates. Applicants must take courses, or pass examinations within 1 year, in Constitution of the United States

²⁷ Handbook on Teacher Certification, State Department of Education Bulletin (Lincoln, 1959).

and Nevada School Law and State Constitution. Certificates are required of all teachers and they must be filed with the deputy superintendent in the school district before opening of the school year.

A graduate holding a Bachelor's Degree from a college or university accredited by either a national or regional accreditation association will be granted a High School Professional Certificate, valid for five years, provided he has completed a recognized major and minor in a teaching field and has completed a minimum of eighteen hours of credit in professional education in the secondary field including four hours of supervised teaching on the high school level. This certificate will be renewable for a period of five years upon the presentation to the certification officer of six hours of credit earned during the life of the certificate or the last renewal period. Two years of successful teaching experience in public high schools will be accepted in lieu of the required hours in a supervised teaching course.

Holders of a Master's Degree who possess the basic educational requirements for the High School Professional Certificate, listed in the foregoing paragraphs, will be granted a High School Professional Certificate provided one has completed two years of successful teaching experience. This certificate will be valid for six years of successful teaching and renewable upon presentation of three hours of credit earned during the life of the certificate, or the last renewal period.²⁸

²⁸ Teachers' Certification Requirements, State Department of Education Bulletin (Carson City, 1959).

NEW HAMPSHIRE

State Certification Officer: Janet G. Nute
 Director of Certification
 State Department of Education
 Concord, New Hampshire

General Requirements: There is no minimum age specified and no fee. Certificates required of all high teachers. The two types of certificates issued are the Standard Certificates and the Professional Certificates. The Standard Certificates are issued for a period of five years. A teacher must acquire six hours in additional courses for recertification prior to the end of 5 year period. The Professional Certificates were issued for the first time in 1959-60 to those holding Master's Degrees.

To teach mathematics in this state a person would have to meet the following requirements:

- Shall have completed a 4 or 5 year course in an accredited post-secondary institution;
- Shall have acquired 15 hours in courses in education;
- Shall have completed 6 hours of supervised student teaching;
- Shall have 18 hours of credits or 12 hours plus 3 years of high school credits in mathematics. He shall have had 6 hours in each subject he plans to teach.²⁹

NEW JERSEY

State Certification Officer: Allan F. Rosebrock
 Director of Teacher Certification

²⁹Certification Regulations for Teachers in High School, State Department of Education Bulletin No. 3422 (Concord, 1958).

State Department of Education

Trenton 25, New Jersey

General Requirements: The minimum age is 18 and the fee is \$5.00. Certificates are required of all teachers and they must be filed with the employing official. All initial certificates, unless otherwise indicated, are issued for five-year terms, convertible to permanent certificates after three years of experience in scope of certificate.

To teach mathematics in this state one would have to have a Bachelor's Degree which must include 30 hours of general education, 18 hours of professional education, 150 clock hours of student teaching, and 18 hours of mathematics. To obtain a Permanent Certificate one would have to raise these 18 hours to 24 hours of mathematics.³⁰

NEW MEXICO

State Certification Officer: La Mar W. Lamb

Director of Certification

State Department of Education

Santa Fe, New Mexico

General Requirements: There is no minimum age but a fee of \$1.00 for the certificate. Certificates are required of all teachers and they must be filed with the employing school authority. The types of certificates issued are the Provisional Secondary Certificate, valid for 5 years, renewable for 5 years, and the Professional Secondary Certificate, valid for 10 years, which has the requirement of a Master's Degree or 30 hours of graduate work.

³⁰ Standards for Certificating Teachers in Secondary Schools, State Department of Education Bulletin (Trenton, 1959).

The New Mexico state requirement for an endorsement to teach mathematics at the secondary level is a minimum of 15 hours in mathematics. A minimum of 48 hours in general education and 18 hours in professional education is also required. An applicant must also have two teaching areas represented, with at least 24 hours in each area.

This state does not issue a general or blanket high school certificate but the subject one teaches is endorsed on the certificate.³¹

NEW YORK

State Certification Officer: William P. Viall

Chief, Bureau of Teacher Certification

State Education Department

Albany 1, New York

General Requirements: The minimum age is 18 and there is a fee of \$5.00 for the certificate. Certificates are required of all high school teachers. Provisional Certificate is issued for a ten-year term, convertible to a Permanent Certificate upon completing 30 hours of graduate study beyond the Bachelor's Degree. Continuous validity of Permanent Certificate is contingent upon service in each five-year period, and 6 hours approved credit each 10 years.

To teach mathematics under a Provisional Certificate one would need a Bachelor's Degree including 18 hours in professional education with a minimum of 6 hours in supervised practice teaching; 3 hours in human growth and development including adolescent problems; 3 hours in

³¹Teachers' Certification Requirements, State Department of Education Bulletin (Santa Fe, 1959).

history, principles and/or philosophy of education. At least 18 hours of mathematics is required including preparation through differential and integral calculus and courses in statistics, mathematics of finance, and history of mathematics.

In order to teach mathematics under a Permanent Certificate 30 hours of mathematics is required with the Master's Degree.³²

NORTH CAROLINA

State Certification Officer: James E. Hillman

Director, Division of Professional Services

State Department of Public Instruction

Raleigh, North Carolina

General Requirements: The minimum age is 18 and there is no fee for the certification. Initial certificates are issued for five-year terms; renewable for 5 years upon completion of 6 hours of appropriate college credit; subsequent renewals for five-year terms upon experience or 6 hours of credit.

To teach mathematics under a Class A Certificate one would need a Bachelor's Degree including 18 hours of professional education of which 6 hours is on the pupil, 6 hours on the school, and 6 hours of teaching and practice. In the field of mathematics 21 hours is required which must include 3 hours of college algebra, 3 hours of trigonometry and 3 hours of analytic geometry. They recommend that the rest of the hours come from differential and integral calculus, history of

³²Certificates for Teaching Service, State Department of Education Bulletin (Albany, 1958).

mathematics, mechanical drawing, surveying, statistics, consumer mathematics, college physics, navigation, and astronomy.

A Graduate Secondary Certificate can be issued to the holder of a Master's Degree which includes 12 hours of additional mathematics, 6 hours of education, and 12 hours of electives.³³

NORTH DAKOTA

State Certification Officer: Mrs. Lorene York

Director of Teacher Certification

State Department of Public Instruction

Bismarck, North Dakota

General Requirements: In this state the minimum age is 18 and the fee varies from \$2.00 to \$5.00. Certificates are required of all teachers and they must be recorded in the office of the county superintendent. The initial certificate is valid for 3 years.

To obtain a Professional Certificate in mathematics one would need a Bachelor's Degree which implies the required 16 hours in professional education, including student teaching. In addition, 30 hours of mathematics would be required to teach it a full school day. With 15 hours of mathematics it could be taught part of a school day.³⁴

OHIO

State Certification Officer: Albert C. May

Director of Teacher Certification

³³ Teaching in North Carolina, State Department of Education Publication No. 326 (Raleigh, 1959).

³⁴ Certification of School Personnel, State Department of Education Bulletin (Bismarck, 1959).

State Department of Education

Columbus 15, Ohio

General Requirements: There is no minimum age specified. The initial fee is \$2.00 and each renewal is \$2.00. Certificates are required of all teachers and they must be filed in the office of superintendent. Initial certificate valid for 4 years, renewable upon evidence of successful experience.

A person would be issued a Provisional Certificate under which to teach mathematics in this state. The holder of this certificate would need a Bachelor's Degree and meet the requirements listed below:

1. Professional Education.17
2. General Education30
3. Mathematics.18
 - a. (Basic or equivalent integrated courses selected from Algebra, Trigonometry, Analytic Geometry, Advanced Euclidean Geometry, and Calculus must equal 9-12 hours.)
 - b. (In addition to the above, from 6-9 hours of credit in courses such as Astronomy, Business Mathematics, Navigation, Statistics, Surveying, History of Mathematics shall be included within the 18 hour requirement.)

Any provisional certificate may be converted into an 8 year Professional Certificate upon evidence of 24 months of successful teaching experience under the Provisional Certificate and 18 hours of additional training credit.

Now this 8 year Professional Certificate may be converted into a

permanent high school certificate upon evidence of 40 months of successful experience under the 8 year certificate and the completion of an appropriate Master's Degree or the equivalent.³⁵

OKLAHOMA

State Certification Officer: E. H. Bingham

Director of Teacher Education

State Department of Public Instruction

Oklahoma City 5, Oklahoma

General Requirements: There is no minimum age but a fee for the certificate and the renewal. A certificate is required and it must be recorded in the office of the county superintendent. Initial certificate is issued for periods of 1 year, 3 years, or 5 years. One-year certificates are renewable upon completing 8 hours toward Standard Certificate; three-year certificate is not renewable; five-year certificate is renewable by teaching 3 of the 5 years or 8 hours of acceptable college work. College credit in American history and government, and high-school, college, or examination credit for Oklahoma history required for Standard Certificate.

The following requirements must be met in order to obtain a Standard Certificate to teach mathematics:

- a. Have a Bachelor's Degree from an institution approved by the State Board of Education.
- b. Complete an approved secondary school teachers education program in the area for which certification is sought, such program to include the following minimum requirements:

1. Fifty hours in general education, distributed so that some work is completed in at least six of the following areas: (a) English (oral English, written English, and literature); (b) social studies, (American history and government and Oklahoma history are required); (c) health and physical education; (d) science; (e) mathematics; (f) psychology; (g) foreign language; (h) fine arts; (i) practical arts, and (j) humanities.
2. Twenty-one hours in professional education, including at least nine hours in student teaching, methods, and materials. If methods, materials, and student teaching are not combined in an integrated course, a minimum of six hours in an integrated course, a minimum of six hours in directed observation, participation, and student teaching will be required.
3. College credit in the area of specialization which is appropriate to the certificate sought as follows:
 - (a) Mathematics: 24 hours in mathematics. Intermediate algebra may be accepted as three hours and solid geometry and plane trigonometry for two hours each when taken in high school and not repeated in college. Not more than six hours of such credit may be used.

A Temporary Certificate can be obtained with 16 hours of mathematics.³⁶

³⁶Regulations and Standards Governing the Preparation and Certification of Teachers and Administrators, State Department of Education Handbook (Oklahoma City, 1957).

OREGON

State Certification Officer: Dick Sorick

Director of Teacher Certification

State Department of Education

Salem, Oregon

General Requirements: The minimum age is 18. They have an initial fee of \$5.00 for the certificate and a renewal fee of \$5.00. Certificates are required of all teachers and they must be recorded in the office of the county school superintendent each year prior to teaching. Initial certificates issued for term of 5 years; renewable for 5 years upon verification of 1 year of teaching experience during life of certificate, when application for renewal is made within 5 years from the date of last year of teaching; otherwise, 8 hours is required for renewal.

To obtain a Secondary Certificate, under which mathematics may be taught, the following requirements must be met:

1. A Bachelor's Degree from a standard college or university.
2. A Master's Degree or 30 hours of secondary teacher preparation completed subsequent to the Bachelor's Degree.
3. Preparation subsequent to the Bachelor's Degree distributed as follows:
 - a. 6 hours in secondary education earned subsequent to the Bachelor's Degree.
 - b. 10 hours of elective graduate study.
 - c. 12 hours of mathematics including college algebra, geometry (analytic, non-euclidean, or projective), and elective courses selected from trigonometry, calculus, mathematics

of finance and statistics, history of mathematics,
and basic concepts of secondary mathematics.

4. 24 hours of secondary education of graduate level and which shall include:

- a. Educational psychology.
- b. Human growth and development.
- c. School in American Life.
- d. Special methods in mathematics.
- e. General high school methods in mathematics.
- f. 6 hours of practice teaching.
- g. Preparation in any two of the following areas:

Curriculum and instruction

Guidance and counseling

Measurement and evaluation

Social foundations of education

Improvement of reading in high school

Until such time as one has completed the five-year secondary teacher education program, he will be issued what is known as a Provisional Certificate. There are 5 of these and are identified as A, B, C, D, and E; each Provisional Certificate is issued for one year only, and it is not renewable.³⁷

PENNSYLVANIA

State Certification Officer: Catherine Coleman

Director, Bureau of Teacher Education

³⁷ Secondary Teachers Certificates, State Department of Education Bulletin (Salem, 1959).

State Department of Public Instruction

Harrisburg, Pennsylvania

General Requirements: The minimum age is 18 and there is no fee. Teaching certificates are of 2 main types--college and standard. The initial college certificate, called a Provisional College Certificate, is issued for three-year term, and becomes permanent upon completing 3 years of successful teaching experience and 6 hours of college credit, 3 of which are in professional education, provided total preparation includes courses in visual education and United States and Pennsylvania history. Standard Certificates are issued for terms and with renewal provisions as indicated; an Interim Certificate held by a college graduate may be replaced by a College Certificate upon completing 18 hours of professional education, including 6 hours in student teaching. Certificates are required of all teachers.

To teach mathematics under a Provisional College Certificate one would have to meet the following requirements:

1. Have a Bachelor's Degree
2. Introduction to education.3 hours
3. Student teaching6 hours
4. Electives in secondary education6 hours
5. Educational Psychology3 hours
6. Have 18 hours of mathematics.³⁸

RHODE ISLAND

State Certification Officer: William P. Robinson, Jr.

³⁸Certification of Secondary School Teachers of Academic Subjects, State Department of Education (Harrisburg, 1959).

Deputy Commissioner of Education
 State Department of Education
 Providence 3, Rhode Island

General Requirements: The minimum age is 19 and there is no fee for the certificate. A certificate is required and it must be on file with the local school employing official. A course in Rhode Island Education is required but one has three years to complete this requirement.

The requirements to teach mathematics under a Provisional Secondary Certificate are listed below:

- A. Bachelor's Degree from an institution approved by the State Board of Education.
- B. Eighteen hours of education courses approved for the preparation of secondary school teachers including not less than six nor more than twelve hours of practice teaching.
- C. Have fifteen hours of college mathematics,

After teaching under this certificate for three years one may apply for a Professional Secondary Certificate which is valid for five years. Twenty-four hours of education courses is required for this certificate. After 10 years of experience under this certificate and with a Master's Degree or 30 hours of graduate work one may obtain a Life Professional Certificate.³⁹

SOUTH CAROLINA

State Certification Officer: George W. Hopkins

Director, Teacher Certification

³⁹ Requirements for the Teaching Certificate, State Department of Education Bulletin (Providence, 1959).

State Department of Education

Columbia 1, South Carolina

General Requirements: The minimum age is 18 and there is no fee for the certificate. Certificate is required and it must be recorded in the office of the county superintendent. One would be required to take a National Teacher Examination. Initial certificate is issued for two-year terms, renewable upon completion of prescribed additional work.

To teach mathematics in this state the following requirements have to be met:

- a. English12 hours
- b. Biological and Physical Sciences12 hours
- c. Social Studies12 hours
- d. Health 3 hours
- e. Art and Music 6 hours
- f. Professional education18 hours
(This must include 6 hours of directed teaching.)
- g. Mathematics 18 hours
(This must include a course in calculus.)⁴⁰

SOUTH DAKOTA

State Certification Officer: Tillie Snyder

Director of Certification

State Department of Public Instruction

Pierre, South Dakota

⁴⁰The Educational Program, State Department of Education Bulletin (Columbia, 1959).

General Requirements: The minimum age is 18. There is a fee of \$5.00 for the certificate and \$5.00 for each renewal. Certificates are required of all teachers and they must be filed with the county superintendent. The initial certificate is issued for a five-year term, unless otherwise indicated.

To teach mathematics under a Secondary Certificate one must have a Bachelor's Degree, including 20 hours in education, 5 of which must be in student teaching at the secondary level. A major consists of 24 hours and a minor of 15 hours. A person is allowed to teach mathematics full time with only 15 hours of college mathematics.

This Secondary Certificate may be renewed for 5 years upon its expiration on the basis of 6 hours of credit earned within the last 5 years at an approved college or university in courses designated by the college as resident work. Correspondence credits are not acceptable for renewal of any certificate. All credits must be earned either by school attendance or by attendance at extension centers.

The holder of a Master's Degree may renew his certificate without the earning of additional credits provided the Master's Degree was obtained within the ten-year period immediately preceding the renewal.⁴¹

TENNESSEE

State Certification Officer: A. B. Cooper

Director of Teacher Certification

State Department of Education

Nashville, Tennessee

⁴¹Secondary Certificate, State Department of Education Bulletin (Pierre, 1959).

General Requirements: The minimum age is 18 and the initial fee for the certificate is \$2.00. Certificate is required and it must be recorded with the employing board of education. Only two types of certificates are issued: Teacher's Professional Certificate based on 4 years of approved college preparation, issued for term of 10 years, and renewable on 5 years teaching experience with an additional 8 hours credit if issued on only the Bachelor's Degree; and the Teacher's Temporary Certificate based on 2 years of college work with a minimum of 60 hours including 30 hours in general education. The Temporary Certificate is valid for 2 years; renewable for two-year periods with 8 hours of credit, 6 of which are in residence.

To teach mathematics under a Teacher's Professional Certificate one must meet the following requirements:

A. General Education.45 hours

Five of the six areas described below are a recommended distribution must be included.

1. Communication.6

2. Health, Physical Education.6

3. Humanities.12

4. Natural Sciences.9

5. Social Studies.9

6. Fundamental Concepts of Mathematics .2

B. Professional Education.24 hours

C. Mathematics18 hours

This must include college algebra, trigonometry, and analytical geometry. A course in general or business mathematics may be included

in the minimum requirements. If one has not had solid geometry in high school it is recommended that it be included in his college programs.⁴²

TEXAS

State Certification Officer: Waurine Walker

Director, Division of Teacher Education

Texas Education Agency

Austin 11, Texas

General Requirements: The minimum age is 18. The fee is \$2.00 for a Provisional Certificate; \$3.00 for a Professional Certificate; \$2.00 for a one-year permit issued on college credentials by the Texas Education Agency; \$1.00 for Emergency Teaching Permit when requested by employing superintendent. Certificate is required and it must be filed with the county superintendent. A course in Constitutions of the United States and of Texas is required. It must be taken within the first year by an out-of-state applicant.

To teach mathematics on a Permanent Provisional Certificate one would need a Bachelor's Degree including 45 hours of general education. 24 hours of professional education is required which must include 12 hours of secondary education and 6 hours of practice teaching. In the field of mathematics one may follow one of two plans. Plan I is 24 hours in first teaching field and 18 hours in a second teaching field, Plan II is 36 hours of mathematics.

⁴²Regulations for Certification of Teachers, State Department of Education Bulletin (Nashville, 1959).

A person who holds a Bachelor's Degree from an accredited college or have completed 90 hours of college work in an accredited college and has had two years of teaching experience may be employed upon an emergency teaching permit.

But the request for the permit must come from an employing superintendent who certifies that an emergency exists and that the applicant is the best qualified person available for the teaching position.⁴³

UTAH

State Certification Officer: N. Baine Winters

Director, Teacher Personnel

State Department of Education

Salt Lake City 14, Utah

General Requirements: There is no minimum age specified and no fee for the certificate. The certificate is issued for a term of 5 years and renewable for 5 years upon completion of 4 hours of graduate study in an approved institution.

The requirements to teach mathematics are a Bachelor's Degree with 22 hours of professional education; 6 hours in courses which will assist in the understanding of secondary-school students (including health education, a statutory requirement); understanding the school and its relationship to the community, 4 hours; 8 hours of student teaching and 2 hours of teaching methods. 20 hours of mathematics is required.⁴⁴

⁴³Requirements of Teacher Education Program for Permanent Provisional Certificate, State Department of Education Bulletin (Austin, 1959).

⁴⁴General Secondary Teacher's Certificate, State Department of Education Bulletin (Salt Lake City, 1959).

VERMONT

State Certification Officer: Newton H. Baker
Director, Teacher Certification
State Department of Education
Montpelier, Vermont

General Requirements: The minimum age is 19 and the maximum age is less than 70 at the beginning of the school year. There is no fee for the certificate. Initial teaching certificates are called Professional Standard; issued for one-year terms; renewable upon recommendation of employing administrator; convertible upon 2 years of successful experience to Professional Standard, which as a three-year term and is renewable for 5 years upon completion of 4 hours of college credit.

A high school mathematics teacher in Vermont is expected to have completed a degree program in an institution approved for the preparation of high school teachers. This program should have included a major in mathematics which at present is a minimum of 24 hours though they may raise this in the near future to 32.

A beginning teacher is given a Probationary Certificate for 2 years and this is followed with a Professional Standard Certificate if his teaching experience is reasonably successful. These certificates are normally valid for five years at a time. Reasonably successful teaching experiences and a minimum of 4 hours of appropriate work is required for renewal.⁴⁵

⁴⁵Secondary Teachers Certificates, State Department of Education Bulletin (Montpelier, 1959).

VIRGINIA

State Certification Officer: Fred O. Wygal

Director, Division of Teacher Education

State Board of Education

Richmond 16, Virginia

General Requirements: The minimum age is 18 and there is no fee for the certificate. This state issues only 2 regular renewable certificates, the Collegiate Professional and the Postgraduate Professional, and 1 provisional, nonrenewable certificate, the Collegiate. Each of these authorizes only performance of such services or teaching in such fields as are endorsed on the certificate, the endorsement being determined by one's transcript.

To teach mathematics in this state one must have a Bachelor's Degree with a background in general education, including a minimum of:

12 hours in English

12 hours in Social Science

6 hours in Health and Physical Education

6 hours in Music, foreign language and art

In the field of professional education one must have 15 hours including student teaching. 18 hours of mathematics is required including at least three hours of calculus. Vocational courses in applied mathematics will not be accepted as part of this 18 hours.

Life Certificates are not issued in Virginia. The periodic renewal revival of certificates is intended to improve the teacher's practices,⁴⁶

⁴⁶Certification Regulations for Teachers, State Board of Education Bulletin (Richmond, 1958).

WASHINGTON

State Certification Officer: Wendell C. Allen

Director, of Teacher Certification

State Board of Education

Olympia, Washington

General Requirements: The minimum age is 18 and the fee is \$1.00 for the certificate. A certificate is required and it must be registered in the office of the county superintendent. Initial certificate issued for 5 years unless otherwise specified; may be converted to Standard Certificate valid as long as one continues to teach and for 5 years thereafter upon completion of a fifth year of college study and 1 year of successful teaching experience.

This state states that graduates of accredited teacher education institutions located outside the State of Washington (a) who hold a valid secondary teaching certificate issued by another state, (b) who have a record of 5 hours of directed teaching or a year of successful secondary school teaching under adequate supervision, and (c) who have completed Washington State Manual and Washington State History and Government may obtain a provisional secondary certificate valid for a total of five years.

With the completion of a fifth college year and 1 year of successful teaching experience one may obtain a Standard Secondary Certificate. In the field of mathematics they expect 40 hours and at least 27 hours of professional education.⁴⁷

⁴⁷State Board of Education Regulations Relating to the Teacher Education Program for the General Certificate, State Department of Education Bulletin (Olympia, 1956).

WEST VIRGINIA

State Certification Officer: Genevieve Starcher

Director of Teacher Preparation

State Department of Education

Charleston 5, West Virginia

General Requirements: The minimum age is 18. There is a \$1.00 fee for the certificate and a renewal fee of \$1.00. A certificate is required and it must be recorded in the office of the county superintendent. The initial certificate is issued for terms of 5 years and renewable for 5 years upon completion of 6 hours of approved credit.

Below are listed the requirements to teach mathematics under a Professional Certificate:

A. General Education		36 hours
1. English	12	
2. Social Studies	12	
3. Science	6	
4. Music and Art	4	
5. Physical Well-Being	2	
B. Professional Education		20 hours
C. Mathematics		18 hours

The suggested courses are teachers mathematics, college algebra, solid geometry, plane trigonometry, spherical trigonometry, analytic geometry, solid analytic geometry, calculus, mathematical theory of statistics, and differential equations.⁴⁸

⁴⁸ Minimum Standards and Requirements for the Preparation and Certification of Public School Personnel, Division of Teacher Preparation and Professional Standards Bulletin (Charleston, 1958).

WISCONSIN

State Certification Officer: R. F. Lewis

First Assistant State Superintendent

State Department of Public Instruction

Madison 2, Wisconsin

General Requirements: There is no minimum age specified and the fee is \$2.00 for the certificate. The initial certificate is issued for a two-year term and is renewable into a permanent certificate upon 2 years of teaching experience and 6 additional hours of college credit.

To teach mathematics one must have a Bachelor's Degree with an approved minor or major in mathematics.

- A. Minor must not be less than 15 hours nor major less than 24 hours.
- B. 18 Hours of professional education including educational psychology, specific methods, student teaching, and electives.⁴⁹

WYOMING

State Certification Officer: Henry F. Chadey

Assistant Superintendent for Instruction

State Department of Education

Cheyenne, Wyoming

General Requirements: There is no minimum age specified and no fee required. One is required to pass examinations on the Constitutions of the United States and Wyoming or to present college credit in same.

⁴⁹ Secondary Certificate, State Department of Education Bulletin (Madison, 1959).

A certificate is required and it must be registered annually with the county superintendent. Standard Certificate is valid for 5 years; renewable indefinitely for five-year periods upon 5 hours of approved credit. Professional Certificate is valid for term of use plus 5 years, subject to rules of State Board; renewable after lapse upon 5 hours of approved credit.

The requirements for a Standard Teaching Certificate under which mathematics may be taught are listed below.

- A. Bachelor's Degree
- B. General education--40 hours including a balanced program with courses from language arts, social sciences, humanities, mathematics, sciences, and practical arts.
- C. Professional education--20 hours in the field of Education including at least one course in each of the following areas:
 1. Social, historical, philosophical foundations.
 2. Human development and psychological foundations.
 3. Curriculum and methodology.
 4. Directed teaching.
- D. Specialized training--24 hours of mathematics with a maximum of 6 hours being allowed for high-school work.

The Professional Teaching Certificate may be obtained with a Master's Degree and 5 years of successful teaching experience in Wyoming.⁵⁰

⁵⁰ Certification Regulations, State Board of Education Bulletin (Cheyenne, 1956).

CHAPTER III

SUMMARY AND CONCLUSION

It was found that 16 states specify no minimum age; 2 states specify age 17; 27 states specify age 18; 3 states specify age 19; and 2 states specify age 20.

The number of states requiring fees for issuance of teachers' certificates are as follows: 22 require no fee; the remaining 28 states have fees ranging from \$1 to \$6. Although 16 states reported the requirement of a special course, only nine states actually require special courses which can usually be secured only in an in-state institution, such as state history and constitution. The states and the special courses are: Arizona (Constitutions of the United States and Arizona); Louisiana (Louisiana History for upper-elementary grade teachers only--was not mentioned in the report); Nevada (Nevada Constitution and School Law); Oklahoma (Oklahoma History); Rhode Island (Rhode Island Education, which must be completed within 3 years of initial teaching in state); Texas (Texas and Federal Governments); Washington (Washington School Law and History, and Government); Wisconsin (Cooperatives and conservation for certain teachers only--wasn't mentioned in report); Wyoming (Wyoming Constitution).

The types of certificate issued to mathematics teachers by the states may be classified under three categories. (1) According to the term, or duration of validity: in this classification the writer uses

the categories of life, permanent, limited continuing, and provisional.

(2) According to levels of preparation: the terms used here are usually regular, standard, professional, emergency, or substandard.

(3) According to authorization of teaching position or assignment: The types here are usually blanket or general (with no area, teaching fields, or subjects specified on certificate): endorsed (each authorized teaching area, field or subject is endorsed on certificate).

A total of 20 states issue life or permanent certificates. The permanent certificate usually is not a life certificate, remaining valid only so long as the holder teaches continuously or is not out of teaching beyond a specified number of years.

Sixteen states issue blanket or general-high-school certificates on which teaching fields and subjects, which the holder qualified to teach according to the requirements of the given state, are not endorsed on the certificate. This does not mean that a holder is authorized to teach any and all fields as is often interpreted to be the meaning. All states have teaching-field prescriptions which teachers must meet to be legally assigned to teach a particular field.

The number of hours in professional education required range from 27 (Washington) to 12 (Arkansas and Maine). The average is about 19 hours.

In the field of mathematics, the number of hours required to teach mathematics full time range from 40 (Indiana) to 12 (Oregon and Colorado). The average is 20 hours. The number of hours required to teach it part time range from 24 (Indiana and South Carolina) to 6 (New Hampshire). The average is 16 hours.

SELECTED BIBLIOGRAPHY
Bulletins Giving State Requirement

- Alabama: Requirements for Class B Secondary Professional Certificate.
Montgomery: State Department of Education, 1959.
- Alaska: Certification Requirements for Teachers. Juneau: State
Department of Education, 1957.
- Arizona: Rules and Regulations for Secondary Certificates.
Phoenix: State Department of Public Instruction, 1958.
- Arkansas: Arkansas Standards for State Certification of School Personnel.
Little Rock: State Department of Education, 1959.
- California: California Administrative Code. Sacramento: State Department
of Education, 1954.
- Colorado: The Law Governing the Issuance of Certificates. Denver:
State Department of Education, 1959.
- Connecticut: Teaching Certificate---Secondary. Hartford: State
Department of Education, 1959.
- Delaware: A High School Teacher's Certificate in Academic Subjects.
Dover: State Department of Public Instruction, 1959.
- Florida: Florida Requirements for Teacher Education and Certification.
Tallahassee: State Department of Education, 1951.
- Georgia: Requirements and Regulations for the Certification of
Teachers and School Leaders. Atlanta: State Department
of Education, 1959.
- Hawaii: Summary Information Regarding Certification of Teachers in
the Public Schools of Hawaii. Honolulu: State Department
of Education, 1959.
- Idaho: Certification of Teachers and Administrators. Boise: State
Board of Education, 1958.
- Illinois: Minimum Standards of Teacher Preparation. Springfield: State
Department of Education, 1958.

- Kansas: Certificate Handbook. Topeka: State Department of Education, 1959.
- Kentucky: Teacher Education--Certification and Competencies of High School Teachers. Frankfort: State Department of Education, 1959.
- Louisiana: Louisiana Standards for State Certification of School Personnel. Baton Rouge: State Department of Education, 1956.
- Maine: Certification Requirements. Augusta: State Department of Education, 1959.
- Maryland: Requirements for Certificates. Baltimore: State Department of Education, 1950.
- Massachusetts: Teacher Certification Requirements. Boston: State Department of Education, 1956.
- Michigan: State Secondary Provisional Certificates. Lansing: State Department of Education, 1959.
- Minnesota: Regulations for the Certification of Teachers. Saint Paul: State Department of Education, 1959.
- Mississippi: Rules and Regulations for the Certification of the Administrative and Instructional Personnel. Jackson: State Department of Education, 1958.
- Missouri: Standards for Certifying Teachers in Secondary Schools. Jefferson City: State Department of Education, 1950.
- Montana: Certification of Teachers and School Administrators in Montana. Helena: State Department of Education, 1959.
- Nebraska: Handbook on Teacher Certification. Lincoln: State Department of Education, 1959.
- Nevada: Teachers' Certification Requirements. Carson City: State Department of Education, 1959.
- New Hampshire: Certification Regulations for Teachers in High School. Trenton: State Department of Education, 1959.
- New Mexico: Teachers' Certification Requirements. Santa Fe: State Department of Education, 1959.
- New York: Certificates for Teaching Service. Albany: State Department of Education, 1958.

- North Carolina: Teaching in North Carolina. Raleigh: State Department of Education, 1959.
- North Dakota: Certification of School Personnel. Bismarck: State Department of Education, 1959.
- Ohio: Laws and Regulations. Columbus: State Department of Education, 1959.
- Oklahoma: Regulations and Standards Governing the Preparation and Certification of Teachers and Administrators. Oklahoma City: State Department of Education, 1957.
- Oregon: Secondary Teachers Certificates. Salem: State Department of Education, 1959.
- Pennsylvania: Certification of Secondary School Teachers of Academic Subjects. Harrisburg: State Department of Education, 1959.
- Rhode Island: Requirements for the Teaching Certificate. Providence: State Department of Education, 1959.
- South Carolina: The Educational Program. Columbia: State Department of Education, 1959.
- South Dakota: Secondary Certificate. Pierre: State Department of Education, 1959.
- Tennessee: Regulations for Certification of Teachers. Nashville: State Department of Education, 1959.
- Texas: Requirements of Teacher Education Program for Permanent Provisional Certificate. Austin: State Department of Education, 1959.
- Utah: General Secondary Teacher's Certificate. Salt Lake City: State Department of Education, 1959.
- Vermont: Secondary Teachers Certificates. Montpelier: State Department of Education, 1959.
- Virginia: Certification Regulations for Teachers. Richmond: State Board of Education, 1958.
- Washington: State Board of Education Regulations Relating to the Teacher Education Program for the General Certificate. Olympia: State Department of Education, 1956.
- West Virginia: Minimum Standards and Requirements for the Preparation and Certification of Public School Personnel. Charleston: State Department of Education, 1958.

Wisconsin: Secondary Certificate. Madison: State Department
of Education, 1959.

Wyoming: Certification Regulations. Cheyenne: State Board
of Education, 1956.

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