

## STEPS FOR ENROLLMENT

**Fresno State Students:**

Currently matriculated students may enroll through priority registration. Be prepared to show proof of prerequisite satisfaction on the first day of class. Otherwise, contact the course instructor to discuss enrollment via instructor consent.

**Non-Fresno State Students:**

Practicing or prospective middle school mathematics teachers may enroll through open university. For information on enrollment, registration, and fees, see [www.csufresno.edu/cge](http://www.csufresno.edu/cge). Contact the course instructor prior to the first day of class to discuss prerequisite satisfaction or enrollment via instructor consent.

CURRENT SCHEDULE

See next semester's schedule at [www.csufresno.edu/ClassSchedule](http://www.csufresno.edu/ClassSchedule)

MAILING LIST INFORMATION

To receive email announcements of upcoming course offerings and activities, you may subscribe to Math Major listserv by sending an email to [listserv@listserv.csufresno.edu](mailto:listserv@listserv.csufresno.edu) with the content:

Subscribe MATHMAJOR [followed by your name]

*Example:* Subscribe MATHMAJOR Joe Smith

**California State University, Fresno****Department of Mathematics**

5245 North Backer Ave, M/S PB 108

Fresno, CA 93740

Phone 559.278.2992

Fax 559.278.2872

[www.fresnostate.edu/csm/math](http://www.fresnostate.edu/csm/math)

Peters Building, Room 381

**Subject Matter Authorization  
in Introductory Mathematics****For Middle School  
Mathematics Teaching**

**FRESNO STATE**

Discovery. Diversity. Distinction.

# MIDDLE SCHOOL MATHEMATICS TEACHING

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California State University, Fresno is recommending a 32-unit plan of coursework specifically focused on subject matter preparation for middle school mathematics teachers. Study areas include development of the real number system, algebra, geometry, statistics, and advanced algebra.

These courses satisfy the California Commission on Teacher Credentialing requirements for a subject matter authorization in introductory mathematics. Such an authorization may be added to a Single Subject or Multiple Subject Teaching Credential and will authorize the holder to teach mathematics in grades 9 and below. (Note that this will enable a teacher to teach a class in which the curriculum is for grades 9 and below but the students in the class may be in grades K-12.)

The California Commission on Teacher Credentialing (CTC) document *Subject Matter Authorization Guidebook* is available at [www.ctc.ca.gov/credentials/manuals-handbooks/Subject-Matter-Auth.pdf](http://www.ctc.ca.gov/credentials/manuals-handbooks/Subject-Matter-Auth.pdf)

## Recommended Courses for Subject Matter Authorization in Introductory Mathematics

**MATH 10A Structure and Concepts in Mathematics I:** Designed for prospective elementary school teachers. Development of real numbers including integers, rational and irrational numbers, computation, prime numbers and factorizations, and problem solving strategies. Meets B4 G.E. requirement only for liberal studies majors. Prerequisite: students must meet the ELM requirement. 3 units

**MATH 10B Structure and Concepts in Mathematics II:** Designed for prospective elementary school teachers. Counting methods, elementary probability and statistics. Topics in geometry to include polygons, congruence and similarity, measurement, geometric transformations, coordinate geometry, and connections between numbers and geometry with selected applications. Prerequisite: MATH 10A. 3 units

**MATH 100 Exploring Mathematics:**

The development of mathematical reasoning, problem solving, and communication skills for effective teaching mathematics in elementary school. Prerequisite: MATH 10B. 3 units

**MATH 133 Number Theory for Liberal Studies:**

The historical development of the concept of number and arithmetic algorithms. The magnitude of numbers. Basic number theory. Special numbers and sequences. Number patterns. Modular arithmetic. Prerequisite: MATH 10B or permission of instructor. 3 units

**MATH 134 Geometry for Liberal Studies:**

The use of computer technology to study and explore concepts in Euclidean geometry. Topics include, but are not restricted to, properties of polygons, tilings, and polyhedra. Prerequisite: MATH 10B or permission of instructor. 3 units

**MATH 137 Exploring Statistics:** Descriptive and inferential statistics with a focus on applications to mathematics education. Use of technology and activities for student discovery and understanding of data organization, collection, analysis, and inference. Prerequisite: MATH 10B or permission of instructor. 3 units

**MATH 138 Exploring Algebra:** Designed for prospective school teachers who wish to develop a deeper conceptual understanding of algebraic themes and ideas needed to become competent and effective mathematics teachers. Prerequisite: MATH 10B or permission of instructor. 3 units

**MATH 139 Advanced Algebra for Middle School Teachers:** Basic structures of modern algebra from a middle school mathematics curriculum perspective. Algebraic structures, polynomial equations, and elementary linear algebra. Prerequisite: MATH 6 or MATH 138. 4 units

**MATH 5 Trigonometry:** Concept of a function, sine and cosine functions, tables and graphs, other trigonometric functions, identities and equations. Trigonometric functions of angles, solution of triangles. Prerequisite: students must meet the ELM requirement. 3 units

**MATH 6 Precalculus:** Basic algebraic properties of real numbers; linear and quadratic equations and inequalities; functions and graphs; polynomials; exponential and logarithmic functions; analytic trigonometry and functions; conics; sequences, and series. Prerequisite: students must meet the ELM requirement. 4 units

### Other options:

Other mathematics courses you have taken at the college level may be used to replace one or more of these courses. Please consult with your advisor.

*Note: Depending on your mathematics background, prerequisites may be waived upon consultation with and approval by the instructor.*

*\*Most of these classes are offered in the evening to accommodate practicing teachers.*

*\*Upon completion of these coursework, students should contact the California State University, Fresno Credential Analyst to process paperwork with CCTC.*

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## ADVISING

The Department of Mathematics at California State University, Fresno offers advising on our subject matter authorization program in introductory mathematics to all practicing or prospective middle school mathematics teachers. Please contact one of our credential advisors to schedule an appointment.

### Credential Advisors:

Dr. Rajee Amarasinghe  
Phone: 559.278.4136  
Email: ramarasi@csufresno.edu  
Office: Peters Building, 332

Dr. Lance Burger  
Phone: 559.278.4906  
Email: lburger@csufresno.edu  
Office: Peters Building, 338

Dr. Agnes Tuska  
Phone: 559.278.2512  
Email: agnest@csufresno.edu  
Office: Peters Building, 351

### Credential Analyst:

Sherri Nakashima  
Phone: 559.278.0300  
Email: sherrin@csufresno.edu  
Office: Education Building, 100