

## Degree Requirements (MAT degree)

### College of Arts and Sciences

## Teaching—Master of Arts in Teaching

UMass Dartmouth offers both Massachusetts Initial and Professional Teaching Licensure Programs at the graduate level. The University offers programs leading to licensure in the following areas: Elementary; Middle and Secondary—Biology, Chemistry, English, Foreign Literature and Languages (French, Portuguese, Spanish), History, Political Science/Political Philosophy, Mathematics, Physics, Science (5-8).

The University of Massachusetts Dartmouth is committed to certifying teachers who are reflective practitioners engaged in better understanding the complex social contexts of learning, education, and schooling in both urban and suburban settings. In addition to a rigorous preparation in subject-matter fields, teacher candidates develop their ability to apply pedagogical theory to practice and to reflect on the complexities inherent in their craft. Teacher candidates are engaged in effective teaching practices that support students with a variety of learning styles and abilities. Our candidates value diversity including, but not limited to, racial, cultural, developmental, and learning differences.

### Initial License Certificate, Post-Baccalaureate

The Department of Education offers an opportunity to career changers and other potential teacher candidates, who already hold an appropriate undergraduate degree, to earn an initial teaching license. The course of study leading to an initial teaching license is described later in this catalogue in the chapter on post-baccalaureate certificates. UMass Dartmouth students who are issued an initial teaching license by the Massachusetts Department of Education are also eligible for licensure reciprocity in states that participate in the NASDECH Interstate Contract.

### Professional License Certificate, Master of Arts in Teaching

The University of Massachusetts Dartmouth's Masters of Art in Teaching (MAT) degree provides graduate students in possession of an initial teaching license the opportunity to obtain a professional license through an appropriate masters program.

### Scheduling

In order to provide maximum scheduling opportunities to meet the time needs of working practitioners, most courses are scheduled in the late afternoon, evening, or weekends, and many are offered through Professional and Continuing Education.

Additionally, teachers may be eligible to participate in the SouthCoast Compact Education Tuition Waiver option, if they are employed in one of the participating SouthCoast School Districts. Please inquire at time of registration.

### Admission Requirements

Applications are encouraged from individuals who demonstrate strong potential for a successful career in teaching. Minimum requirements for acceptance into the program include an appropriate bachelor's degree and a minimum undergraduate grade point average of 2.7. Individuals who do not possess an Initial Massachusetts Teaching License must complete this prior to filing formal application to the MAT program.

Applicants for the MAT program must submit the required application materials to the Graduate Office. The MAT admissions committee will assess credentials in the following areas:

- Grades in undergraduate work
- Recommendations from three people familiar with your work or potential as a teacher
- A personal statement explaining your goals and background as a teacher

When space permits, individuals holding a bachelor's degree may enroll in MAT courses as non-degree special students without applying for admission to the MAT program. To register as a non-degree special student, you will need an approval form available from the Office of Graduate Studies. A maximum of 15 credits toward the MAT degree (including 6 transfer credits) may be earned as a special student prior to formal application to the program.

### Transfer Credits

Students may request up to six transfer credits from another program if the credits meet the following criteria: a) the courses are at the graduate level or the senior level of undergraduate studies; b) they are similar to courses in our MAT program; c) they were taken within the past five years; d) the grades are B or better; e) they were not credited toward any other degree. Additional options are possible by petition to the MAT Program Committee. Life or experience credits may not be translated into course credits.

### MAT in Elementary Education

#### Prerequisite

An initial teaching license in Elementary Education.

#### Required Courses for MAT in Elementary Education

	credits
<i>MAT courses</i>	15
MAT 601 Curriculum Design and Implementation (3)	
MAT 603 Foundations of Education (3)	
MAT 609 Effective Instruction (3)	
MAT 605 Research Methods or Department equivalent (3)	
MAT 606 Thesis Research Project (related to the teaching discipline) (3)	

#### Disciplinary Content Courses

Must include one course each in science, math, language arts, and social studies

*Total credits* 30

### MAT in Middle and Secondary Education

#### Prerequisite

An initial teaching license in Middle or Secondary Education in the appropriate subject area.

#### Required Core Courses for MAT in Middle School Education or Secondary Education

	credits
<i>MAT courses</i>	15
MAT 601 Curriculum Design and Implementation (3)	
MAT 603 Foundations of Education (3)	
MAT 609 Effective Instruction (3)	
MAT 605 Research Methods or Department equivalent (3)	
MAT 606 Thesis Research Project (related to the teaching discipline) (3)	

#### Disciplinary Content Courses for MAT in Middle School Education or Secondary Education

All require 15 MAT Core credits and 15 credits in the appropriate discipline, as specified below for each discipline area.

*Total credits* 30

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**MAT in Biology (9-12)**

Students choose 15 graduate credits in Biology in consultation with their MAT advisor.

**MAT in Chemistry (9-12)**

Students choose 15 graduate credits in Chemistry in consultation with their MAT advisor.

**MAT in English (5-8 and 9-12)**

Required course: ENL 632 Theory and Practice in Teaching Reading and Writing

Students choose 12 graduate credits from other English department graduate courses in consultation with their MAT advisor.

**MAT in French (5-8 and 9-12)**

Students choose 15 graduate credits in French and/or FLL courses in consultation with their MAT advisor.

**MAT in General Science (5-8)**

Students choose 15 graduate credits from interdisciplinary SCI science courses and/or specific science disciplines in consultation with their MAT advisor.

**MAT in History (5-8 and 9-12)**

Required course: HST 501 Theory and Practice of Teaching History and Social Science

Students choose 12 graduate credits from other History and/or Political Science graduate courses in consultation with their MAT advisor.

**MAT in Mathematics (5-8 and 9-12)**

Students choose 15 graduate credits in Mathematics in consultation with their MAT advisor.

**MAT in Physics (9-12)**

Students choose 15 graduate credits in Physics in consultation with their MAT advisor.

**MAT in Political Science/Political Philosophy (5-8 and 9-12)**

Required course: HST 501 Theory and Practice of Teaching History and Social Science  
Students choose 12 graduate credits in History, Political Science, and Philosophy graduate courses in consultation with their MAT advisor.

**MAT in Portuguese (5-12)**

Required course: POR 521 Teaching Portuguese as a Second Language

Students choose 12 graduate credits in Portuguese in consultation with their MAT advisor.

**MAT in Spanish (5-12)**

Required course: FLL 676 Applied Linguistics for Teachers of Spanish: A Pragmatic Perspective (course delivered in Spanish)

Students choose 12 graduate credits in Spanish and/or FLL courses in consultation with their MAT advisor.

**MAT Advisors**

All students will have an academic advisor appropriate to their teaching specialty.

Biology  
Dr Palma J. Longo  
Assistant Professor of Biology and Science Education  
508 999-8017  
plongo@umassd.edu

Chemistry  
Dr William Dills  
Chairperson, Department of Chemistry  
508 999-8206  
wdills@umassd.edu

Elementary Education  
Dr Anne Foley, Associate Professor of Education  
508 910-6603  
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English  
Dr William Nelles, Professor of English  
508 999-8284  
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French, Spanish  
Dr Christina Biron, Professor of Foreign Literature and Languages (Spanish)  
508 999-8743  
cbiron@umassd.edu

General Science  
Professor Brenda Bouchard, Medical and Laboratory Science  
508 999-8330  
bbouchard@umassd.edu

History  
Dr Gerard Koot, Chairperson and Chancellor Professor of History  
508 999-8305  
gkoot@umassd.edu

Mathematics  
Dr Maria Blanton, Associate Professor of Mathematics Education  
508 999-9154  
mblanton@umassd.edu

Political Science/Political Philosophy  
Dr Gerard Koot, Chancellor Professor of History  
508 999-8305  
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Portuguese  
Dr Anna Klobucka, Portuguese Department  
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508-999-8241

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**Contact**

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gkoot@umassd.edu

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285 Old Westport Road  
North Dartmouth, MA 02747-2300

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## MAT Courses

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**MAT 601** three credits

**Curriculum Design and Implementation**

A study of curriculum dimensions, concepts, design, and products for varied student populations and school settings. This course focuses on curriculum planning on multicultural and multisector levels, research of curriculum development, and the study of curriculum issues, trends, and innovations.

**MAT 603** three credits

**Foundations of Education**

A study of insights which various disciplines can offer to the discussion of major educational issues, policies, and trends. The disciplines of philosophy, psychology, sociology, and history will provide the intellectual foundation designed to develop an awareness of and critical disposition to pressing educational concerns.

**MAT 605** three credits

**Effective Research Methods**

Prerequisite: Completion of 21 credits  
The techniques and criteria for understanding and conducting research in education with emphasis on action research. Topics include research strategies, secondary literature review, research design, data collection, research techniques, and the completion of a research proposal for a Thesis Research Project.

**MAT 606** three credits

**Thesis Research Project**

Prerequisite: MAT 605, permission of instructor  
Researching an applied, experimental, or theoretical problem in education with an emphasis on action research, its application to K-12 teaching and learning, and the professional development of the researcher. The research will lead to a Thesis Research Report which requires approval by the candidate's Thesis Research Project Committee for the awarding of an MAT degree.

**MAT 609** three credits

**Effective Instruction**

This highly interactive course translates the results of the research on effective instruction models into practical and usable strategies that teachers can implement in today's diverse block scheduled classroom and teaming strategies that teachers can implement in instructional models such as cooperative learning, multiple intelligences and brain-based learning will be emphasized and applied to the National Performance Standards and the Massachusetts Curriculum Frameworks. In addition, other models such as direct instruction, concept attainment, concept development, synectics and inquiry based will be discussed. Contemporary alternative assess-

ment models such as exhibitions and portfolios will be reviewed and implemented.

**MAT 699** three credits

**Graduate Thesis**

Prerequisites: MAT candidacy and MAT 605 or equivalent  
Thesis research and writing. Submission of formal thesis is required for awarding of credit.

### Education Courses for the MAT

**BIO 600** three credits

**Teaching Science in the Elementary School**

*Not for credit in Biology MS program.*

Life, physical, and earth sciences that are involved in the development of scientific concepts and processes for elementary school science. A variety of natural phenomena, such as the plant, Brassica rapa, will be used as models to develop an inquiry and standards approach to the learning and teaching of science.

**BIO 635** three credits

**Methods and Materials for Secondary School Teachers of Biology**

*Not for credit in Biology MS program.*  
Modes of inquiry, methods of research and experimentation, and teaching strategies. This course is designed for future teachers of biology. Graduate students enroll concurrently with students in BIO 435 but do additional work.

**EDU 595** three credits

**Independent Study**

Prerequisites: Upper-division standing; permission of instructor, department chairperson, and college dean  
Individual study of additional areas needed for teacher licensure, including methods in specific disciplines, reading, etc. Terms and hours will be arranged. Confer with appropriate members of the Education Department.

**EDU 596** three credits

**Directed Study**

Prerequisites: Permission of the instructor, department chairperson, and college dean  
Study under the supervision of a faculty member in an area covered in a regular course not currently being offered. Conditions and hours to be arranged. Confer with appropriate members of the Education Department.

**EDU 610** three credits

**Developmental Language Arts**

Surveys methods of teaching the language arts which take into consideration elementary and middle school students' needs and abilities.

Emphasis will be on writing instruction.

**EDU 611** three credits

**Developmental Reading**

A study of the cultural, social and psycholinguistic principles, strategies and practices underlying reading and learning to read.

**EDU 612** three credits

**Teaching Writing in the Elementary and Middle School**

A developmentally appropriate model to provide participants with the theory, the tools, and the support to create a writing program in their classrooms.

**EDU 613** three credits

**Literature for the Elementary and Middle School Child**

Introduces methods of bringing literature to children grades K-8.

**EDU 615** three credits

**Current Trends in the Teaching of Social Studies in Elementary and Middle Schools**

Social studies as a tool to help young people develop the ability to make informed decisions for the public good as citizens of a culturally diverse, democratic society in an independent world.

**FLL 625** three credits

**Teaching Spanish Within the Elementary and Middle School Settings: Curriculum Development through the Arts**

Prerequisite: Must be a MAT student  
Designed for Spanish teachers K-8. Teachers are presented with arts-based strategies to teach interactive use of Spanish at the elementary and middle school levels. Topics include the classroom use of Hispanic stories, songs and music, rhymes and poetry, and arts and crafts to facilitate Spanish language development. The program models using arts-based instruction in the classroom and issues related to implementations of programs are also discussed. Students are provided with the opportunity to use inquiry skills in the development of both theoretical and applied content.

**MAT 650** one to four credits (usually three)  
**Seminar: Contemporary Issues in Teaching and Education**

An investigation of current issues in education. The seminar will bring together area teachers, faculty, and invited experts across grade-level divisions, but on some occasions, sessions may be held covering topics that will be considered for a particular grade or subject. May be repeated with change of content.

## English Courses for the MAT

**ENL 657** three credits

### **Literature Seminar: Historical Approaches**

Explores canonical and/or non-canonical literature from a historical perspective to strengthen background knowledge and understanding of literature, using representative literary texts as a point for departure and discussion. Includes discussion of issues relating the role of historical texts to alternative, non-traditional, and multi-cultural contexts and of the pedagogical limitations and issues inherent in using a historical approach. Specific focus of the seminar, such as the Dickens Novel, will be listed in the course bulletin and on student transcripts.

**ENL 659** three credits

### **Graduate Literature Seminar: Thematic and Cultural Approaches**

Exploration of the study of literature in light of current thematic and cultural perspectives. This course includes discussion of women's literature, minority literature, and third-world literature, especially as such works contrast with or depart from the traditional canon. The course will examine the influences of these works on student learning and issues that arise in the classroom when they are introduced. In addition to traditional texts, the course will consider the options for use of alternative, non-traditional materials. Discussion will focus on the pedagogical limitations, problems, and issues inherent in using a cultural or thematic approach, with emphasis on finding ways to animate and vitalize the literature classroom.

**ENL 684 / FLL 684** three credits

### **Literary Criticism I: Theory and Practice in Teaching Literature**

Intensive readings with analysis of relationships among language, thought, form, and content. The course will examine the intellectual, emotional, cultural, multicultural, and aesthetic qualities of texts, including the links among stylistic devices, central motifs, author's purpose, motivation, imagination, and psychology with emphasis on secondary students' analytic writing and reading abilities. The course will examine forms of literary criticism as they apply to teaching secondary language and literature.

## Foreign Literature and Languages Courses for the MAT

**FLL 522** three credits

### **Introduction to Second Language Acquisition and Use**

Designed as a graduate course for in-service

teachers. Teachers are provided with an introduction to second language acquisition theory and research through task-based learning and teaching as well as the ways in which task-based learning and teaching can be implemented within the classroom context. Topics discussed include Krashen's input hypothesis, Long's interaction hypothesis, the negotiation of meaning, Vygotskian accounts of language learning, lexical theories as well as rule-governed theories of language competence, theories of speech production and theories of implicit and explicit knowledge. Students are provided with opportunities to use inquiry skills in the development of both theoretical and applied context. At the end of the course, students should be able to demonstrate the following outcomes: (1) an understanding of the relationship between task-based learning and teaching and second language acquisition theory and research and (2) the ability to apply task-based learning and teaching to varied foreign language classroom contexts and in ways that promote the development of higher order thinking skills and extended language use.

**FLL 525** three credits

### **Origin and Evolution of Romance Languages**

Prerequisite: FRN 302, POR 302, or SPA 302 (or equivalent)

Examination of the common origin of the romance languages in Latin and their evolution into French, Italian, Portuguese, and Spanish. The course uses both the traditional philological method and modern theoretical linguistics, both synchronic and diachronic. Furthermore, linguistic features are interpreted for their historical and sociological factors.

**FLL 526**

### **Classroom discourse**

Detailed exploration and examination of the role that teacher-student and student-student classroom interaction plays in the development of student target language use and a critical analysis of sociocultural principles of language learning as they relate to linguistic classroom practices, participation structures, and different activity types. Topics include the idea of learning as participation; language as a tool for social action; mind as the joint construction of biological and cultural processes; meditational means; the zone of proximal development; scaffolding and collaborative dialogue; the development of class learning opportunities; the use of content-based instruction to promote classroom discourse; the development of a critical pedagogy; and the idea of teaching as assisted performance. At the end of this course, classroom teachers will be able to

maximize their use of the target language as well as that of students in ways that are comprehensible and that contribute to a larger topic or goal-directed agenda. Students are provided with the opportunity to use inquiry skills in the development of both theoretical and applied content.

**FLL 625** three credits

### **Teaching Spanish Within the Elementary and Middle School Settings: Curriculum Development through the Arts**

Prerequisite: Must be a MAT student  
Designed for Spanish teachers K-8. Teachers are presented with arts-based strategies to teach interactive use of Spanish at the elementary and middle school levels. Topics include the classroom use of Hispanic stories, songs and music, rhymes and poetry, and arts and crafts to facilitate Spanish language development. The program models using arts-based instruction in the classroom and issues related to implementations of programs are also discussed. Students are provided with the opportunity to use inquiry skills in the development of both theoretical and applied content.

**FLL 676** three credits

### **Applied Linguistics for Teachers of Spanish: A Pragmatic Perspective**

Course delivered in Spanish

A critical examination of Spanish language and culture as a pragmatic system and the ways in which student pragmatic development can be enhanced through classroom language instruction and assessment. Topics include theories of second language pragmatic development, approaches to developmental pragmatics research, the development of pragmatics and grammar, differences in pragmatic production and pragmatic comprehension, the relationship between learner contexts and pragmatic development, and the social perceptions underlying participants' interpretation and performance of social acts. The course includes discussion of the Spanish pronominal and verbal systems as well as issues of morphology, semantics, lexicon and discourse as they apply to the teaching and assessment of classroom Spanish from a pragmatic perspective. Students are provided with opportunities to use inquiry skills in the development of both theoretical and applied content.

**FLL 684 / ENL 684** three credits

### **Literary Criticism I: Theory and Practice in Teaching Literature**

Prerequisite: MAT enrollment or permission of instructor

Intensive readings with analysis of relationships

among language, thought, form, and content. The course will examine the intellectual, emotional, cultural, multicultural, and aesthetic qualities of texts, including the links among stylistic devices, central motifs, author's purpose, motivation, imagination, and psychology with emphasis on secondary students' analytic writing and reading abilities. The course will examine forms of literary criticism as they apply to teaching secondary language and literature.

### History Courses for the MAT

**HST 501** three credits

#### Teaching History and Social Science in Middle and Secondary Schools

Prerequisites: EDU 207, 527

The historical and contemporary debate on the nature of the history and social studies curriculum in middle and secondary schools. This course will investigate the actual curriculum and practice of history and social studies teaching in area schools, and formulate specific strategies for effective teaching and curriculum building.

**HST 511** three credits

#### Teaching American History

Prerequisite: Graduate student status or special permission of instructor

Seminar examining current trends and issues in the study of American history. Intended primarily for MAT candidates in history and social studies, this course will focus on recent developments in scholarship and their implications for the teaching of American history.

**HST 512** three credits

#### Teaching European History

Prerequisite: Graduate student status or special permission of instructor

Seminar examining current trends and issues in the study of European history. Intended primarily for MAT candidates in history and social studies, this course will focus on recent developments in scholarship and their implications for the teaching of European history.

**HST 513** three credits

#### Teaching World History

Prerequisite: Graduate student status or special permission of instructor

Seminar examining current trends and issues in the study of world history. Intended primarily for MAT candidates in history and social studies, this course will focus on recent developments in scholarship and their implications for the teaching of world history.

**HST 521** three credits

#### Graduate Seminar in History

Graduate Seminars in history are designed to allow participants to pursue reading and research on a particular historical topic. Course may be repeated with change of topic.

### Mathematics Courses for the MAT

**MTH 508** three credits

#### Math for Elementary Teachers

Problems of the changing modern mathematics curriculum. Current issues, attitudes, and learning theories will be studied, including the mathematical foundations of the elementary school curriculum.

**MTH 509** three credits

#### Statistics for Teachers

Prerequisite: Perm. of instructor or MTH 507  
Statistics for Teachers surveys the statistical methods used in science and everyday life and addresses the problem of pedagogy and statistical misconceptions. The course also examines the modern educational technology and software used in statistics.

**MTH 511** three credits

#### Calculus and Analysis for Teachers

Prerequisite: Permission of instructor or undergraduate calculus  
Calculus and Analysis for Teachers assumes successful completion of a standard university calculus sequence. It addresses the key underlying idea of the mathematics change: notions of variation, rate, mean value, and accumulation across many contexts and representations, as well as the connections between rates and accumulation as embodied in the Fundamental Theorem of Calculus. It also addresses relations between discrete and continuous models of change, including conceptions of limit.

**MTH 520** three credits

#### Discrete Math for Teachers

Prerequisite: Permission of instructor or modern algebra  
Topics in Discrete Mathematics, including combinatorics, logic and set theory, algorithms, linear algebra, relations and functions, elements of number theory, and chaos/fractals. The focus will be on the connections and deep structural themes unifying these areas, and on using discrete math to gain a deeper understanding of high-school algebra and calculus.

**MTH 522** three credits

#### Algebraic Structures for Teachers

Prerequisite: Permission of instructor or undergraduate algebra

Algebraic Structures for Teachers examines the many forms of algebraic reasoning and their conceptual underpinnings, the fundamental shift in the place of algebra in school mathematics, and the potential unifying role of abstract and general algebraic structures at the upper secondary level. The course will engage students in vigorous critique of traditional and innovative algebra learning materials and technologies.

**MTH 530** three credits

#### Technology in Mathematics Education

Prerequisite: MTH 211 or enrollment in MAT program

Relevant contemporary mathematics investigated through new innovative technologies in an inquiry-based classroom. Explores non-Euclidean geometries, stereographic projection, and the complex plane using dynamic geometry environments, nonlinear dynamical systems using Chaotic Waterwheels, and parametric variation using new hardware infrastructures, as well as multi-dimensional mathematics using graphing software and haptic technology.

**MTH 540** three credits

#### Mathematical Challenges

Developing understanding of student mathematical learning and needs through the completion of mathematical challenges. Each week a new challenge will be set with hints offered at various times. Each challenge will not have a straightforward solution, and the class is expected to develop personal insights into the nature of their mathematical behavior and relate these reflections to practice. An email discussion list and website will facilitate continued inquiry and sharing of ideas outside of class.

**MTH 591/2** three credits

#### Topics in Mathematics for Teachers

Prerequisite: Permission of instructor  
Individual and/ or group study under supervision of a faculty member in an area of mathematics for teachers that is not otherwise part of graduate course offerings.

**MTH 572** three credits

#### Numerical Methods for Partial Differential Equations

See MTH 472.

**MTH 573** three credits

#### Numerical Linear Algebra

See MTH 473.

**MTH 574** three credits

#### Numerical Optimization

See MTH 474.

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## Physics Courses for the MAT

### **PHY 430** three credits **Methods and Strategies for Physics Teachers**

Teaching strategies and methods for different learning styles of students. Attention is given to analytic and graphic as well as intuitive presentation of physics concepts and phenomena. Uses techniques including audio-visual aids, demonstration and hands-on experiments. Additional courses from the courses listed for Biology, Chemistry, Medical Laboratory Science, or Physics, with permission of the instructor and the MAT Science Advisor or MAT Director.

## Psychology Course for the MAT

### **PSY 609** three credits **Early/Middle Adolescence**

Prerequisite: An undergraduate course in child or adolescent psychology or its equivalent. What makes young adolescents distinctly different—such as issues of puberty, conformity, burgeoning intellectual powers. Of particular concern are two issues: (a) evaluating the validity of the research that provides us with our knowledge of them, and (b) exploring how to apply our knowledge to effective practice both in formal and informal settings.

## Science Courses for the MAT in General Science

May also be used towards the MATs in Biology, Chemistry, and Physics, as approved by the program advisor.

### **SCI 501** three credits **Life Science I**

Life science concepts and laboratory skills that relate to the instruction of middle and secondary education. Particular emphasis will be devoted to the application of infused technology and science in unit development and lesson plans.

### **SCI 502** three credits **Earth Science Activities for Middle School**

A combination lecture/laboratory approach to teaching “hands-on” Earth Science. Course will combine topic lectures with practical methods of illustrating important concepts to middle school students.

### **SCI 503** three credits **Marine Science for Teachers**

Marine science for teachers, in application to the local environment. This is a classroom/

field-based science course for general science teachers that will link specific learning standards from the Massachusetts State Frameworks to the local environment. Sample MCAS questions from fifth, eighth, and tenth grade science and technology examinations will be analyzed.

### **SCI 504** three credits **Teaching Middle School Physical Science**

Teaching Middle School Physical Science is a course designed to provide content rich material with instructional methodology. This class will link physical science topics and key concepts to specific learning standards and sample MCAS questions. This course will provide middle school science concepts that are important in middle school.

### **SCI 505** three credits **Life Science II**

Addresses portions of Massachusetts Science and Technology/Engineering Curriculum Frameworks involving cellular biology and principles of heredity. Through didactic and laboratory experiences, practical teaching strategies and classroom applications will be explored. Emphasis will be placed on research based core instructional models demonstrated in the completion of a Constructive Action Portfolio.

### **SCI 506** three credits **Astronomy for Teachers**

Exploration of the physical nature of the solar system and the characteristics of stars and stellar evolution for teachers, keyed to the Massachusetts General Science Curriculum Frameworks. The course will include an extensive use of models and projects that can be used for teaching astronomy concepts in the schools.

### **SCI 508** three credits **Chemistry for Educators**

Exploration of the chemical properties of organic and inorganic matter, aligned with the Massachusetts General Science and Chemistry Curriculum Frameworks. The course will include an extensive use of laboratory exercises, models, and projects that can be used for teaching chemistry concepts in elementary and middle school science classes.

## Social Science Courses for the MAT

### **PSC 501** three credits **Teaching Political Science in Secondary Schools**

Analysis of the policy-making process, particularly in contemporary American national, state and local politics; comparative analysis of

other political systems; development of issue oriented case studies and units for use in secondary social studies courses; development of critical thinking and communications skills.

**Additional courses in the Social Sciences**  
With permission of the MAT Social Studies Advisor or the MAT Director

## Portuguese Course for the MAT

### **POR 521** three credits **Teaching Portuguese as a Foreign Language**

A theoretical and practical survey of methods and techniques used to teach foreign languages designed for both preservice and inservice teachers of Portuguese. Development of educational materials for Portuguese and methodological issues applicable to heritage language learners are particularly emphasized. Assignments include presentations of teaching modules, classroom observations, and preparation of professional portfolios. This course is aligned with National Standards for Foreign Language Learning and with the Massachusetts Foreign Languages Curriculum Framework.