

SCIENCE EDUCATION

Program Information

The Science Education master's degree program focus on theory and research-based best practices in formal and informal science teaching and learning at all age levels (preK-adult). The School of Teaching and Learning offers one master's degree in Science Education: a Master of Arts in Education (M.A.E. degree). More information about the requirements for these degrees can be found in the Graduate Degrees (<https://gradcatalog.ufl.edu/graduate/degrees/>) section of this catalog.

Certificate Program

The School of Teaching and Learning also offers an online Educator Preparation Institute (EPI) program that leads to Florida Teacher Professional Certification (middle and high school) at the post-baccalaureate level. This certificate program is an approved Florida Department of Education Educator Preparation Institute (EPI). Our program is:

- Interdisciplinary
- Completed in 2 semesters
- Strong subject-area preparation with 1 semester of supervised student teaching
- Is completed entirely online, allowing you to complete your student teaching in your local area
- Can transfer directly and become the first half of an online Master's degree, an M.A.E. in Science Education

This 18-credit certification program is fully approved by the Florida Department of Education and leads to eligibility for Professional Educator certification in Florida. Students from out of state are welcome to apply. Be sure you understand the implications for your own state's teaching certification requirements.

Master of Arts in Education

The M.A.E. in science education offers two options: thesis or project-in-lieu of thesis. Upon admission, M.A.E. students work closely with a faculty advisor to design a program of study tailored to their professional needs and goals. Students who have completed the EPI Certificate Program may use all 18 of those credits towards the M. A. E. Students can complete science education M.A.E. programs as either part-time or full-time students. This program is also appropriate for individuals who are interested in adding to their science content background with graduate level coursework while preparing to teach at the community college level. <https://education.ufl.edu/science-education/master-of-arts/>.

Thesis Option

The thesis option is designed for experienced preK-adult formal or informal science educators interested in pursuing advanced degrees with a strong research focus. Most students completing the M.A.E. thesis option continue on to pursue doctoral degrees in science education. Thirty credits of graduate level coursework and six credits of supervised research culminating in a thesis are required.

Non-Thesis Option

The non-thesis option is primarily designed for experienced preK-adult formal or informal science educators interested in improving their own professional practice while also earning a graduate degree. A minimum

of 36 total graduate credits is required for the non-thesis M.A.E. degree along with a project that is usually job-embedded.

For more detailed information about the Science programs and faculty, as well as various certificate programs please visit our website: <http://education.ufl.edu/science-education> (<http://education.ufl.edu/science-education/>).

Degrees Offered

Degrees Offered with a Major in Science Education

- Master of Arts in Education
- Master of Education

Requirements for these degrees are given in the Graduate Degrees (<http://gradcatalog.ufl.edu/graduate/degrees/>) section of this catalog.

Courses

School of Teaching and Learning Departmental Courses

Code	Title	Credits
EDE 5940	Integrated Teaching and Learning	3
EDE 6266	Teaching and Learning in Elementary Classrooms	3
EDE 6325	Teacher Inquiry/Action Research	3
EDE 6905	Individual Work	1-5
EDE 6948	Internship in Elementary Schools	3-12
EDE 7047	Issues in Teacher Education	3
EDF 5552	Role of School in Democratic Society	3
EDF 6520	History of Education	3
EDF 6544	Philosophical Foundations of Education	3
EDF 6616	Education and American Culture	3
EDF 6636	Theorizing Race and Racism in Educational Research	3
EDF 6639	Anti-Black Racism in Education	3
EDF 6812	Comparative Education	3
EDF 6866	Education in Latin America	3
EDF 6939	Critical Race Theory in Educational Research	3
EDF 7934	Seminar in Educational Foundations	3
EDG 5666	Knowing and Learning in Secondary Schools	3
EDG 6017	Writing for Academic Purposes	3
EDG 6047	Teacher Leadership for Educational Change	3
EDG 6207	Transforming the Curriculum	3
EDG 6225	Global Studies Methods in K-12 Education	3
EDG 6226	Foundations of Research in Curriculum & Instruction	3
EDG 6228	Qualitative Research for Practitioner Scholars	3
EDG 6229	Qualitative Research in Curriculum and Instruction	3
EDG 6305	Multiple Perspectives on Teaching and Learning	3
EDG 6348	Instructional Coaching for Enhanced Student Learning	3
EDG 6356	Teaching, Learning and Assessment	3
EDG 6378	Learning Science with Technology	3
EDG 6415	Culturally Responsive Classroom Management	3
EDG 6445	Meeting the Educational Needs of Students Living in Poverty	3

EDG 6648	Research Design in Curriculum and Instruction	3	EME 6935	Seminar: Distance Education Issues and Applications	1
EDG 6664	Survey of Research on STEM Education	3	EME 6945	Practicum in Educational Media and Instructional Design	3-8
EDG 6668	Teaching Adults	3	EME 7345	Implementing Educational Technology Innovations (ETIs)	3
EDG 6805C	K-12 Computer Programming Foundations I	3	EME 7938	Seminar in Educational Media and Instructional Design	3
EDG 6806C	K-12 Computer Programming Foundations II	3	ESE 5426	Data-Driven Decision Making for Secondary Teachers	3
EDG 6807	Issues and Trends in K-12 Computer Science Education	3	ESE 6344	Classroom Practices and Assessment in Secondary Education	3
EDG 6905	Individual Work	1-6	ESE 6345	Effective Teaching and Classroom Management	3
EDG 6910	Supervised Research	1-5	ESE 6905	Individual Work	1-4
EDG 6930	Schooling & the Marginalization of Students	3	ESE 6939	Special Topics	3
EDG 6931	Special Topics	1-4	ESE 6945	Student Teaching in Secondary School	2-9
EDG 6940	Supervised Teaching	1-5	ETE 6141	K-12 Computer Sc Pedagogy I	3
EDG 6953	TLSI Online Portfolio Preparation	1-3	ETE 6142	K-12 Computer Sc Pedagogy II	3
EDG 6971	Research for Master's Thesis	1-15	FLE 6165	Bilingual-Bicultural Education	3
EDG 6973	Project in Lieu of Thesis	1-9	FLE 6167	Cross-Cultural Communication for Teachers	3
EDG 7224	Critical Pedagogy	3	LAE 5341	Language Arts: Teaching Nonfiction Writing	3
EDG 7252	Perspectives in Curriculum, Teaching, and Teacher Education	3	LAE 6298	Literacy & Language Instruction	3
EDG 7303	Teacher Learning and Socialization in High Poverty Schools	3	LAE 6339	Curriculum, Methods, and Assessment in Secondary English Language Arts	3
EDG 7359	Professional Development and Teacher Learning	3	LAE 6348	Teaching Multiliteracies	3
EDG 7365	Practitioner Research: Data Collection and Analysis	3	LAE 6365	Language Arts: Language and Composition	3
EDG 7941	Field Experience in Curriculum and Instruction	1-4	LAE 6366	Language Arts: Literature	3
EDG 7979	Advanced Research	1-12	LAE 6407	Early Childhood Children's Literature	3
EDG 7980	Research for Doctoral Dissertation	1-15	LAE 6446	Multicultural Literature for Children and Adolescents	3
EDG 7982	Practitioner Research: Theory & Practice	3	LAE 6616	Seminar in Children's Literature	3
EME 5054	Foundations of Educational Technology	3	LAE 6861	Technology and Media Literacy	3
EME 5207	Designing Technology-Rich Curricula	3	LAE 6865	Teaching Media Literacy with the Internet	3
EME 5403	Instructional Computing I	3	LAE 6869	Teaching Digital Storytelling	3
EME 5404	Instructional Computing II	3	LAE 6939	Literacy, Family, and Culture	3
EME 5405	Internet in K-12 Instruction	3	LAE 6945	Practicum and Assessment for Teachers of Secondary School English	3
EME 5432	Integrating Technology into Social Science Classroom	3	LAE 6946	Children's Literature in Educational Settings	3
EME 6059	Blended Learning Environments	3	LAE 7006	Language Acquisition and Education	3
EME 6065	Human-Computer Interaction and the Learner	3	LAE 7519	Language and Inquiry	3
EME 6066	Issues and Trends in Educational Technology Research	3	LAE 7934	Seminar in Composition Theory and Practice	3
EME 6067	Emerging Learning Technologies	3	LAE 7936	Seminar in English Language Arts	3
EME 6074	Mobile Technologies in Education	3	LAE 7938	Lit, Cult and Politics	3
EME 6156	Games and Simulations for Teaching and Learning	3	MAE 5327	Middle School Mathematics Methods	3
EME 6208	Designing Integrated Media Environments I	3	MAE 5332	Secondary School Mathematics Methods and Assessment	3
EME 6209	Designing Integrated Media Environments II	3	MAE 5347	Teaching K-8 Mathematics for Understanding	3
EME 6235	Managing Educational Projects	3	MAE 5395	Multicultural Mathematics Methods	3
EME 6236	Distance Education Leadership and Management	3	MAE 5396	Using Formative Assessment to Improve Mathematical Learning	3
EME 6458	Distance Teaching and Learning	3	MAE 5945	Secondary School Mathematics Practicum	3-6
EME 6480	Quantitative Methods in Educational Technology Research	3	MAE 6313	Problem Solving in School Mathematics	3
EME 6606	Advanced Instructional Design	3	MAE 6349	Classroom Contexts that Support Self-Regulated Learning and Mathematical Understanding	3
EME 6609	Instructional Design	3	MAE 6916	Inquiry in Mathematics Teaching	3
EME 6637	Managing and Analyzing Multimodal Educational Data	3	MAE 7899	Mathematics Education Seminar	3
EME 6638	Theory, Design, and Development of Stealth Assessment for Learning	3	MUE 7938	Music Education Seminar	3
EME 6645	Neurotechnologies in Education	3	RED 5337	Reading in the Secondary School	3
EME 6651	Learning Analytics Concepts and Techniques	3	RED 5355	Reading Instruction in the Elementary School	3
			RED 5399	Practices in Beginning Reading Instruction	3

RED 6346	Seminar in Reading	3-6
RED 6448	Diagnosing and Remediating Reading Difficulties	3
RED 6520	Classroom Literacy Assessment and Instruction	3
RED 6546C	Diagnosis of Reading Difficulties	3
RED 6548C	Remediation of Reading Difficulties	3
RED 6647	Trends in Reading	3
RED 6843	Reading Practicum	1
RED 6941	Practicum in Diagnosis and Remediation of Reading Difficulties	3
RED 7019	Foundations of Literacy	3
SCE 5140	Science Curriculum Development	3
SCE 5316	Inquiry-Based Science Teaching	3
SCE 5695	Diversity and Equity in Science Teaching	3
SCE 5765	Data-Driven Science Instruction	3
SCE 6117	Science Education in the Elementary School	3
SCE 6337	Secondary Science Methods and Assessment	3
SCE 6930	Seminar in Science Education	3
SCE 6947	Practicum in Secondary Science Teaching and Assessment	3
SMT 6066	Data Wrangling and Visualization in Educational Research	3
SMT 6106	Informal STEM Practice	3
SSE 5945C	Practicum in Secondary Social Studies Teaching and Assessment	3
SSE 6046	Perspectives in Social Studies Education	3
SSE 6117	Social Studies Education--Elementary School	3
SSE 6133	Secondary School Social Studies Methods and Assessment	3
SSE 6478	Global Studies Methods for Social Studies	3
TSL 5142	ESOL Curriculum, Methods, and Assessment	3
TSL 5325	Secondary ESOL Teaching Strategies	3
TSL 5335	ESOL and Reading for Secondary Teachers	3
TSL 6145	Curriculum and Materials Development for ESOL K-12	3
TSL 6245	Language Principles for ESOL Teachers	3
TSL 6373	Methods of Teaching ESOL K-12	3
TSL 6440	Testing and Evaluation of ESOL	3
TSL 6670	Multilingualism from a Global Perspective	3
TSL 6700	Issues in ESOL for School Counselors and Psychologists	3

General Courses

Code	Title	Credits
EDG 6047	Teacher Leadership for Educational Change	3
EDG 6207	Transforming the Curriculum	3
EDG 6226	Foundations of Research in Curriculum & Instruction	3
EDG 6356	Teaching, Learning and Assessment	3
EDG 6905	Individual Work	1-6
EDG 6910	Supervised Research	1-5
EDG 6931	Special Topics	1-4
EDG 6940	Supervised Teaching	1-5
EDG 6971	Research for Master's Thesis	1-15
EDG 6973	Project in Lieu of Thesis	1-9
EDG 7224	Critical Pedagogy	3
EDG 7252	Perspectives in Curriculum, Teaching, and Teacher Education	3

EDG 7303	Teacher Learning and Socialization in High Poverty Schools	3
EDG 7941	Field Experience in Curriculum and Instruction	1-4
EDG 7979	Advanced Research	1-12
EDG 7980	Research for Doctoral Dissertation	1-15
EME 6156	Games and Simulations for Teaching and Learning	3
EME 6235	Managing Educational Projects	3
EME 6236	Distance Education Leadership and Management	3

Curriculum, Teaching, and Teacher Education Courses

Code	Title	Credits
EDE 5940	Integrated Teaching and Learning	3
EDE 6266	Teaching and Learning in Elementary Classrooms	3
EDE 6325	Teacher Inquiry/Action Research	3
EDE 6905	Individual Work	1-5
EDE 6948	Internship in Elementary Schools	3-12
EDE 7047	Issues in Teacher Education	3
EDG 6356	Teaching, Learning and Assessment	3
EDG 7224	Critical Pedagogy	3
EDG 7252	Perspectives in Curriculum, Teaching, and Teacher Education	3
EDG 7303	Teacher Learning and Socialization in High Poverty Schools	3
EDG 7982	Practitioner Research: Theory & Practice	3

Educational Technology Courses

Code	Title	Credits
EME 5054	Foundations of Educational Technology	3
EME 5207	Designing Technology-Rich Curricula	3
EME 5403	Instructional Computing I	3
EME 5404	Instructional Computing II	3
EME 5405	Internet in K-12 Instruction	3
EME 5432	Integrating Technology into Social Science Classroom	3
EME 6066	Issues and Trends in Educational Technology Research	3
EME 6208	Designing Integrated Media Environments I	3
EME 6209	Designing Integrated Media Environments II	3
EME 6458	Distance Teaching and Learning	3
EME 6606	Advanced Instructional Design	3
EME 6609	Instructional Design	3
EME 6935	Seminar: Distance Education Issues and Applications	1
EME 6945	Practicum in Educational Media and Instructional Design	3-8
EME 7938	Seminar in Educational Media and Instructional Design	3

ESOL/Bilingual Education Courses

Code	Title	Credits
FLE 6165	Bilingual-Bicultural Education	3
FLE 6167	Cross-Cultural Communication for Teachers	3
TSL 5142	ESOL Curriculum, Methods, and Assessment	3
TSL 5325	Secondary ESOL Teaching Strategies	3
TSL 6145	Curriculum and Materials Development for ESOL K-12	3
TSL 6245	Language Principles for ESOL Teachers	3

TSL 6373	Methods of Teaching ESOL K-12	3
TSL 6440	Testing and Evaluation of ESOL	3
TSL 6700	Issues in ESOL for School Counselors and Psychologists	3

Language and Literacy Education Courses

Code	Title	Credits
LAE 6298	Literacy & Language Instruction	3
LAE 6339	Curriculum, Methods, and Assessment in Secondary English Language Arts	3
LAE 6348	Teaching Multiliteracies	3
LAE 6365	Language Arts: Language and Composition	3
LAE 6366	Language Arts: Literature	3
LAE 6407	Early Childhood Children's Literature	3
LAE 6446	Multicultural Literature for Children and Adolescents	3
LAE 6616	Seminar in Children's Literature	3
LAE 6861	Technology and Media Literacy	3
LAE 6865	Teaching Media Literacy with the Internet	3
LAE 6869	Teaching Digital Storytelling	3
LAE 6939	Literacy, Family, and Culture	3
LAE 6945	Practicum and Assessment for Teachers of Secondary School English	3
LAE 6946	Children's Literature in Educational Settings	3
LAE 7006	Language Acquisition and Education	3
LAE 7519	Language and Inquiry	3
LAE 7934	Seminar in Composition Theory and Practice	3
LAE 7936	Seminar in English Language Arts	3

Mathematics Education Courses

Code	Title	Credits
MAE 5327	Middle School Mathematics Methods	3
MAE 5332	Secondary School Mathematics Methods and Assessment	3
MAE 5395	Multicultural Mathematics Methods	3
MAE 5396	Using Formative Assessment to Improve Mathematical Learning	3
MAE 5347	Teaching K-8 Mathematics for Understanding	3
MAE 5945	Secondary School Mathematics Practicum	3-6
MAE 6313	Problem Solving in School Mathematics	3
MAE 7899	Mathematics Education Seminar	3

Reading Education Courses

Code	Title	Credits
RED 5337	Reading in the Secondary School	3
RED 5355	Reading Instruction in the Elementary School	3
RED 5399	Practices in Beginning Reading Instruction	3
RED 6346	Seminar in Reading	3-6
RED 6520	Classroom Literacy Assessment and Instruction	3
RED 6546C	Diagnosis of Reading Difficulties	3
RED 6548C	Remediation of Reading Difficulties	3
RED 6647	Trends in Reading	3
RED 6941	Practicum in Diagnosis and Remediation of Reading Difficulties	3
RED 7019	Foundations of Literacy	3

Science Education Courses

Code	Title	Credits
SCE 5140	Science Curriculum Development	3
SCE 5316	Inquiry-Based Science Teaching	3

SCE 5695	Diversity and Equity in Science Teaching	3
SCE 5765	Data-Driven Science Instruction	3
SCE 6117	Science Education in the Elementary School	3
SCE 6337	Secondary Science Methods and Assessment	3
SCE 6947	Practicum in Secondary Science Teaching and Assessment	3

Secondary Education Courses

Code	Title	Credits
ESE 6344	Classroom Practices and Assessment in Secondary Education	3
ESE 6345	Effective Teaching and Classroom Management	3
ESE 6905	Individual Work	1-4
ESE 6939	Special Topics	3
ESE 6945	Student Teaching in Secondary School	3-9

Social Foundations of Education Courses

Code	Title	Credits
EDF 5552	Role of School in Democratic Society	3
EDF 6520	History of Education	3
EDF 6544	Philosophical Foundations of Education	3
EDF 6616	Education and American Culture	3
EDF 6812	Comparative Education	3
EDF 7934	Seminar in Educational Foundations	3

Social Studies Education Courses

Code	Title	Credits
SSE 5945C	Practicum in Secondary Social Studies Teaching and Assessment	3
SSE 6046	Perspectives in Social Studies Education	3
SSE 6117	Social Studies Education--Elementary School	3
SSE 6133	Secondary School Social Studies Methods and Assessment	3
SSE 6478	Global Studies Methods for Social Studies	3

Teacher Leadership for School Improvement Courses

Code	Title	Credits
EDE 6325	Teacher Inquiry/Action Research	3
EDG 6047	Teacher Leadership for Educational Change	3
EDG 6207	Transforming the Curriculum	3
EDG 6415	Culturally Responsive Classroom Management	3
EDG 6953	TLSI Online Portfolio Preparation	1-3

Student Learning Outcomes

Science Education (MAE)

SLO 1 Knowledge
The student will identify and describe general and subject-area specific area best practices in teaching and learning in Science Education.

SLO 2 Skills
The student will investigate a significant problem or original question within their specific field of Science Education.

SLO 3 Professional Behavior
The student will apply knowledge of science content and pedagogy to complete a written thesis or project and an oral presentation of research

that focuses on a significant problem or original question in Science Education.

Science Education (MEd)

SLO 1 Knowledge

The student will investigate, identify, describe, and explain best practices in science teaching and learning.

SLO 2 Skills

The student will organize content for instruction, develop and implement appropriate inclusive teaching practices, evaluate the impact of instruction on student learning, and create a positive learning environment.

SLO 3 Professional Behavior

The student will collaborate with other professionals, reflect upon their own professional practice, and demonstrate a sense of efficacy and ethical practice.