



**Professional Education Program Proposal  
COVER SHEET**

**Institution:** \_\_\_\_\_ **Date Submitted:** \_\_\_\_\_

**Program Contact Person:** \_\_\_\_\_

**Position/Title:** \_\_\_\_\_ **Phone:** \_\_\_\_\_ **Email:** \_\_\_\_\_

**Name of program:** \_\_\_\_\_ **CIP Code:** \_\_\_\_\_

**Degree or award level (B.S., M.A.T., graduate non-degree, etc.):** \_\_\_\_\_

**Indicate the title and grade range of the license for which candidates will be prepared:**

**Title:** \_\_\_\_\_ **Grade Range:** \_\_\_\_\_

**Proposal is for:**

\_\_\_\_ **New First-Time Licensure Program** (Complete Section A)

\_\_\_\_ **New Educator Licensure Endorsement Program** (Complete Section B)

\_\_\_\_ **Revision(s) to Approved Licensure Program** (Complete Section C)

\_\_\_\_ **Deletion of Approved Licensure Program** (Complete Section D)

**Indicate the portion of the proposed program to be delivered via Distance Learning  
Technology (online):** \_\_\_\_\_ %

**Proposed program starting date:** \_\_\_\_\_

**Will this program be offered at more than one site?**    Yes    No

If yes, list the sites where the program will be offered:

\_\_\_\_\_

*Prior approval by AHECB is required for Arkansas public institutions and institutions certified under Ark. Code Ann. §6-61-301 to offer programs at off-campus sites.*

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## 2. Description and Rationale of Revisions

Of our five STEM Education (formerly UAteach) licensure areas, the Computer Science program of study did not go through at the same time of the group of 2020 revisions that Math, Life Sciences, Chemistry, and Physics did, which were approved last year, for 2 reasons: 1) The Computer Science program of study was new in 2017 and by design, was not tied to any degree thus did not need to go through that same major change that the other licensure areas had to (de-coupling the licensure coursework from about 20 various degree plans) and 2) the Computer Science department did not have the competency matrix ready yet to send with the package of minor changes. Now that the Computer Science department has filled out the matrix matching their courses with the newer competencies, the Computer Science program of study is ready to be approved not only for that, but for the other minor changes that the UAteach program underwent in its transition, that included a name change from UAteach to the name STEM Education. So, going from the old Computer Science licensure program of study to the proposed revised one, the following changes are to be made:

- 1) Update to the most recent competencies: 2018 Computer Science Educator Competencies. **The old program of study below indicates the changes. No new Computer Science courses are listed, thus no Computer Science syllabi are included.**
- 2) Changing *STEM 4409 Supervised Clinical Teaching Internship* by splitting it into 2 components: *STEM 4506 Teaching Internship*, and *STEM 4403 Teaching Seminar*. Both syllabi are included in this document.
- 3) The Program of Study for the education courses is the same as the revisions that were approved in 2020 for the other four licensure areas in our program. Those approvals included 1) two courses being re-numbered (ARSC 1221 became ARSC 1212 and STEM 2203 became STEM 3203) and the addition of one course that is an optional entry into the program (STEM 2003 The Art of Communication, syllabus included below), and the deletion of STEM 3303.

## 3. (only minor revisions)

#### 4. Documentation of Revisions provided below

##### a. Changes to Curriculum:

##### i. Old Program of Study that indicates changes and New Program of Study

**Former (2017) Computer Science Licensure Program of Study** with 2022 changes noted in red;( New course numbers and names are on next page):

#### **PROGRAM OF STUDY FOR UAteach **STEM Education** COMPUTER SCIENCE LICENSURE**

##### **Education COURSES**

ARSC 1201	Inquiry Approach to Teaching (new course name)
ARSC 1221	Inquiry-based Lesson Design (new course name and number) (also added an option: students may take STEM 2003 instead of the 2 courses listed above)
STEM 2103	Knowing & Learning
STEM 2203	Classroom Interactions (new course name)
<del>STEM 3303</del>	<del>Project-based Instruction (course no longer exists; deleted from program)</del>
STEM 4409*	Supervised Clinical Teaching (Internship) (9 credits split into 2 components: STEM 4506 Teaching Internship and STEM 4403 Teaching Seminar)

##### **REQUIRED Content COURSES**

CSCE 2004	Programming Foundations I
CSCE 2014	Programming Foundations II
CSCE 2114	Digital Design
CSCE 3193	Programming Paradigms
CATE 4073	Teaching Programming in Secondary Schools
<del>BIOL/CHEM/PHYS 3273</del>	<del>Research Methods (UAteach) (course deleted as a requirement)</del>

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**Elective Content Courses: Computer Science** (We are eliminating choice of electives. Students will take the three listed courses below.)

~~Students must choose 2 electives from this list to deepen their knowledge and provide further support of the CS competencies.~~

CSCE 2214	Computer Organization
CSCE 3513	Software Engineering
CSCE 3613	Operating Systems
<del>CSCE 4133</del>	<del>Algorithms</del>
<del>CSCE 4523</del>	<del>Database Management</del>

## New Program of Study:

# STEM Teacher Licensure Program for Math, Biology, Chemistry, Physics or Computer Science Licensure

## Education Courses

### Everybody takes:

- Either ARSC 1201/ARSC 1212 or STEM 2003 Art of STEM Comm.
- STEM 2103 Knowing & Learning
- STEM 3203 Classroom Interactions
- STEM 4506 Supervised Teaching Internship
- STEM 4403 Teaching Seminar

### MATH Licensure only:

- SEED 4303 or SEED 4313 Teaching Secondary Mathematics I or II
- MATH 2903 Functions, Foundations, and Models

### Science Licensure Only:

- SEED 4003 Teaching Secondary Science
- STEM 4333 History and Philosophy of Science for Science Teachers
- BIOL/CHEM/PHYS 3273 Inquiry & Modeling in Science Education

### Computer Science Licensure Only:

- CATE 4073 Teaching Programming in Secondary Schools

## Content Area Courses

- Each licensure area has a list of specific content area courses that must be taken to earn the teaching license.
- Students do not need to earn a degree in the licensure area

*(although most people will take that path, the revised program allows other majors such as engineering or geosciences to add the required content courses along with the STEM Teacher Licensure courses to earn the teaching license)*

ii. Curriculum Matrix for Arkansas Educator Competencies – Computer Science 4-12 Licensure

Computer Science Grades 4-12	Course Alignment with ADE Content Competencies							
	Programming Found. I	Programming Found. II	Programming Paradigms	Digital Design	Computer Organization	Software Engineering	Operating Systems	Teaching Programming
<b>1. Computing Systems</b>	CSCE 2004	CSCE 2014	CSCE 3193	CSCE 2114	CSCE 2214	CSCE 3513	CSCE 3613	CATE 4073
1.1					X		X	X
1.2					X		X	X
1.3	X	X	X	X	X	X	X	X
1.4					X		X	X
1.5					X		X	
1.6					X		X	
<b>2. Networks and the Internet</b>	CSCE 2004	CSCE 2014	CSCE 3193	CSCE 2114	CSCE 2214	CSCE 3513	CSCE 3613	CATE 4073
2.1						X	X	
2.2				X	X			
2.3						X	X	
2.4							X	
2.5						X	X	
2.6						X	X	
2.7							X	
2.8			X				X	
2.9							X	
<b>3. Data and Analysis</b>	CSCE 2004	CSCE 2014	CSCE 3193	CSCE 2114	CSCE 2214	CSCE 3513	CSCE 3613	CATE 4073
3.1				X	X			X
3.2		X				X	X	X
3.3						X		
3.4				X	X			
3.5					X		X	
3.6						X		
3.7						X	X	
<b>4. Algorithms and Programming</b>	CSCE 2004	CSCE 2014	CSCE 3193	CSCE 2114	CSCE 2214	CSCE 3513	CSCE 3613	CATE 4073
4.1	X	X	X	X				X
4.2			X					X
4.3	X	X	X			X	X	X
4.4	X	X	X			X	X	X
4.5			X			X		

<b>5. Impacts of Computing</b>	CSCE 2004	CSCE 2014	CSCE 3193	CSCE 2114	CSCE 2214	CSCE 3513	CSCE 3613	CATE 4073
5.1			X			X	X	X
5.2						X		X
5.3						X		X
5.4						X		X
5.5						X		X
5.6							X	
5.7						X	X	
<b>6. Computational Artifacts</b>	CSCE 2004	CSCE 2014	CSCE 3193	CSCE 2114	CSCE 2214	CSCE 3513	CSCE 3613	CATE 4073
6.1						X		X
6.2						X		X
6.3						X		X
6.4		X	X			X		X
6.5			X			X	X	X
6.6			X			X		X
6.7						X		
<b>7. Disciplinary Literacy</b>								CATE 4073
7.1						X		X
7.2						X	X	X
7.3						X		X
7.4						X		X
7.5						X		X
7.6						X		X
7.7						X		X
7.8						X		X
7.9						X		X

iii. Matrix for Arkansas Teaching Standards

All Licensur e Areas	Course Alignment with Arkansas Teaching Standards - 2022 revision										
	*Includes Field Experience										
	STEM 2003 (Intro Option1)	ARSC 1201* (intro Option2 w/ ARSC 1212)	ARSC 1212* (intro Option2 w/ ARSC 1201)	STEM 2103	STEM 3203*	STEM 4003* Science only	STEM 4303* (option 1) Math only	STEM 4313* (option 2) Math only	CATE 4073* CS only	<b>New Course-</b> STEM 4403	STEM 4506*
Standard #1 Learner Developm ent	Art of STEM Comm.	Intro to Tchng. STEM	Field Exp. Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tching Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Progr.	Tchng. Seminar	Intern- ship
Performances											
1 (a)					X	X	X	X	X	X	X
1 (b)		X	X		X	X	X	X	X	X	X
1 c)										X	X
Essential Knowledge											
1 (d)				X	X	X	X	X	X	X	X
1 (e)		X	X	X	X	X	X	X	X	X	X
1 (f)		X	X		X	X	X	X	X	X	X
1 (g)	X	X	X	X	X	X	X	X	X	X	X
Critical Dispositions											
1 (h)	X	X	X	X	X	X	X	X	X	X	X
1 (i)	X	X	X	X	X	X	X	X	X	X	X
1 (j)				X	X	X	X	X	X	X	X
1 (k)					X	X	X	X	X	X	X
Standard #2 Learning Difference s	Art of STEM Comm.	Intro to Tchng. STEM	Field Exp. Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tching Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Progr.	Tchng. Seminar	Intern- ship
Performances											
2 (a)					X	X	X	X	X	X	X
2 (b)					X	X	X	X	X	X	X
2 (c)					X	X	X	X	X	X	X
2 (d)	X	X	X		X	X	X	X	X	X	X
2 (e)					X	X	X	X	X	X	X
2 (f)										X	X
Essential Knowledge											
2 (g)				X	X	X	X	X	X	X	X
2 (h)				X	X	X	X	X	X	X	X
2 (i)					X	X	X	X	X	X	X



2 (j)	X	X	X	X	X	X	X	X	X	X	X
2 (k)				X	X	X	X	X	X	X	X
Critical Dispositions											
2 (l)				X	X	X	X	X	X	X	X
2 (m)	X	X	X	X	X	X	X	X	X	X	X
2 (n)	X	X	X		X	X	X	X	X	X	X
2 (o)					X	X	X	X	X	X	X
<b>Standard #3 Learning Environments</b>	Art of STEM Comm.	Intro to Tchng. STEM	Field Exp. Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Progr.	Tchng. Seminar	Intern-ship
Performances											
3 (a)										X	X
3 (b)						X	X	X	X	X	X
3 (c)	X	X	X		X	X	X	X	X	X	X
3 (d)	X	X	X		X	X	X	X	X	X	X
3 (e)						X	X	X	X	X	X
3 (f)	X	X	X		X	X	X	X	X	X	X
3 (g)	X	X	X		X	X	X	X	X	X	X
3 (h)	X	X	X		x	X	X	X	X	X	X
Essential Knowledge											
3 (i)	X	X	X	X	X	X	X	X	X	X	X
3 (j)	X	X	X		X	X	X	X	X	X	X
3 (k)					X	X	X	X	X	X	X
3 (l)	X	X	X	X	X	X	X	X	X	X	X
3 (m)	X	X	X		X	X	X	X	X	X	X
Critical Dispositions											
3 (n)						X	X	X	X	X	X
3 (o)		X	X	X	X	X	X	X	X	X	X
3 (p)		X	X		X	X	X	X	X	X	X
3 (q)	X	X	X		X	X	X	X	X	X	X
3 (r)	X	X	X	X	X	X	X	X	X	X	X
<b>Standard #4 Content Knowledge</b>	Art of STEM Comm.	Intro to Tchng. STEM	Field Exp. Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Progr.	Tchng. Seminar	Intern-ship
Performances											
4 (a)	X	X	X	X	X	X	X	X	X	X	X
4 (b)	X	X	X		X	X	X	X	X	X	X
4 (c)	X	X	X		X	X	X	X	X	X	X
4 (d)	X	X	X	X	X	X	X	X	X	X	X

4 (e)	X	X	X	X	X	X	X	X	X	X	X
4 (f)					X	X	X	X	X	X	X
4 (g)					X	X	X	X	X	X	X
4 (h)				X	X	X	X	X	X	X	X
4 (i)										X	X
Essential Knowledge											
4 (j)	X	X	X			X	X	X	X	X	X
4(k)	X	X	X	X	X	X	X	X	X	X	X
4 (l)	X	X	X		X	X	X	X	X	X	X
4 (m)	X	X		X	X	X	X	X	X	X	X
4 (n)					X	X	X	X	X	X	X
Critical Dispositions											
4 (o)	X	X	X	X	X	X	X	X	X	X	X
4 (p)	X	X	X		X	X	X	X	X	X	X
4 (q)	X	X	X		X	X	X	X	X	X	X
4 (r)				X	X	X	X	X	X	X	X
<b>Standard #5 Application of Content</b>	Art of STEM Comm.	Intro to Tchng. STEM	Field Exp. Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Progr.	Tchng. Seminar	Intern-ship
Performances											
5 (a)						X	X	X	X	X	
5 (b)	X	X	X			X	X	X	X	X	
5 (c)					X	X	X	X	X	X	X
5 (d)	X	X				X	X	X	X	X	
5 (e)	X	X				X	X	X	X	X	
5 (f)						X	X	X	X	X	
5 (g)						X	X	X	X	X	
5 (h)				X		X	X	X	X	X	
Essential Knowledge											
5 (i)	X	X	X		X	X	X	X	X	X	X
5 (j)		X	X			X	X	X	X	X	X
5 (k)	X	X				X	X	X	X	X	X
5 (l)	X	X	X		X	X	X	X	X	X	X
5 (m)	X	X	X		X	X	X	X	X	X	X
5 (n)	X	X	X			X	X	X	X	X	X
5 (o)						X	X	X	X	X	X
5 (p)						X	X	X	X	X	X
Critical Dispositions											
5 (q)	X					X	X	X	X	X	X

5 (r)	X	X	X	X		X	X	X	X	X	X
5 (s)	X	X	X		X	X	X	X	X	X	X
<b>Standard #6 Assessment</b>	Art of STEM Comm.	Intro to Tchng. STEM	Field Exp. Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Progr.	Tchng. Seminar	Intern-ship
Performances											
6 (a)					X	X	X	X	X	X	X
6 (b)	X		X		X	X	X	X	X	X	X
6 (c)										X	X
6 (d)										X	X
6 (e)	X	X	X		X	X	X	X	X	X	X
6 (f)					X	X	X	X	X	X	X
6 (g)										X	X
6 (h)										X	X
6 (i)										X	X
Essential Knowledge											
6 (j)			X	X	X	X	X	X	X	X	X
6 (k)				X	X	X	X	X	X	X	X
6 (l)				X	X	X	X	X	X	X	X
6 (m)				X						X	X
6 (n)				X	X	X	X	X	X	X	X
6 (o)										X	X
6 (p)										X	X
Critical Dispositions											
6 (q)				X						X	X
6 (r)					X	X	X	X	X	X	X
6 (s)										X	X
6 (t)					X	X	X	X	X	X	X
6 (u)										X	X
6 (v)				X						X	X
<b>Standard #7 Planning for Instruction</b>	Art of STEM Comm.	Intro to Tchng. STEM	Field Exp. Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Progr.	Tchng. Seminar	Intern-ship
Performances											
7 (a)	X	X	X		X	X	X	X	X	X	X
7 (b)					X	X	X	X	X	X	X
7 (c)		X	X		X	X	X	X	X	X	X
7 (d)				X	X	X	X	X	X	X	X
7 (e)										X	X
7 (f)					X	X	X	X	X	X	X

Essential Knowledge											
7 (g)	X	X	X		X	X	X	X	X	X	X
7 (h)	X	X	X			X	X	X	X	X	X
7 (i)				X	X	X	X	X	X	X	X
7 (j)				X	X	X	X	X	X	X	X
7 (k)	X	X	X	X	X	X	X	X	X	X	X
7 (l)	X		X	X	X	X	X	X	X	X	X
7 (m)										X	X
Critical Dispositions											
7 (n)	X	X	X	X	X	X	X	X	X	X	X
7 (o)					X	X	X	X	X	X	X
7 (p)					X	X	X	X	X	X	X
7 (q)	X	X	X	X	X	X	X	X	X	X	X
<b>Standard # 8</b>											
<b>Instructional Strategies</b>	Art of STEM Comm.	Intro to Tchng. STEM	Field Exp. Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Progr.	Tchng. Seminar	Internship
Performances											
8 (a)	X	X	X		X	X	X	X	X	X	X
8 (b)			X		X	X	X	X	X	X	X
8 (c)										X	X
8 (d)	X	X	X		X	X	X	X	X	X	X
8 (e)	X	X	X	X	X	X	X	X	X	X	X
8 (f)	X	X	X	X	X	X	X	X	X	X	X
8 (g)					X	X	X	X	X	X	X
8 (h)	X	X	X		X	X	X	X	X	X	X
8 (i)	X	X	X		X	X	X	X	X	X	X
Essential Knowledge											
8 (j)				X	X	X	X	X	X	X	X
8 (k)				X	X	X	X	X	X	X	X
8 (l)					X	X	X	X	X	X	X
8 (m)	X	X	X	X	X	X	X	X	X	X	X
8 (n)	X	X	X		X	X	X	X	X	X	X
8 (o)	X	X	X		X	X	X	X	X	X	X
Critical Dispositions											
8 (p)	X	X	X	X	X	X	X	X	X	X	X
8 (q)	X	X	X	X	X	X	X	X	X	X	X
8 (r)		X	X		X	X	X	X	X	X	X
8 (s)	X	X	X	X	X	X	X	X	X	X	X

<b>Standard #9 Professional Learning and Ethical Practice</b>	Art of STEM Comm.	Intro to Tchng. STEM	Field Exp. Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Progr.	Tchng. Seminar	Intern-ship
Performances											
9 (a)				X	X	X	X	X	X	X	X
9 (b)										X	X
9 (c)					X	X	X	X	X	X	X
9 (d)										X	X
9 (e)	X	X	X	X	X	X	X	X	X	X	X
9 (f)						X	X	X	X	X	X
Essential Knowledge											
9 (g)					X	X	X	X	X	X	X
9 (h)					X	X	X	X	X	X	X
9 (i)	X	X	X	X	X	X	X	X	X	X	X
9 (j)										X	X
9 (k)										X	X
Critical Dispositions											
9 (l)		X	X		X	X	X	X	X	X	X
9 (m)	X	X	X	X	X	X	X	X	X	X	X
9 (n)				X	X	X	X	X	X	X	X
9 (o)					X	X	X	X	X	X	X
<b>Standard #10: Leadership and Collaboration</b>	Art of STEM Comm.	Intro to Tchng. STEM	Field Exp. Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Progr.	Tchng. Seminar	Intern-ship
Performances											
10 (a)										X	X
10 (b)										X	X
10 (c)										X	X
10 (d)										X	X
10 (e)										X	X
10 (f)										X	X
10 (g)										X	X
10 (h)										X	X
10 (i)										X	X
10 (j)										X	X
10 (k)										X	X
Essential Knowledge											

10 (l)										X	X
10 (m)				X						X	X
10 (n)					X	X	X	X	X	X	X
10 (o)						X	X	X	X	X	X
Critical Dispositions											
10 (p)										X	X
10 (q)										X	X
10 (r)										X	X
10 (s)										X	X
10(t)						X	X	X	X	X	X

iv. Matrix for TESS Competencies

Course Alignment with Teacher Excellence and Support System – 2022 Revision											
	*Includes Field Experience										
<b>Section I: Framework for Teaching</b>	STEM 2003 (Intro Option1)	ARSC 1201* (Intro Option2 w/ ARSC 1212)	ARSC 1212* (Intro Option 2 w/ ARSC 1201)	STEM 2103	STEM 3203*	SEED 4003* Science only	SEED 4303* (Option 1) Math only	SEED 4313* (Option 2) Math only	CATE 4073* CS only	<b>New Course STEM 4403</b>	STEM 4506*
<b>Domain 1: Planning and Preparation</b>	Art of STEM Comm.	Intro to Teaching STEM Subjects	Field Exp. in Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Prog.	Tchng. Seminar	Intern- ship
1.a	X	X	X	X	X	X	X	X	X	X	X
1.b	X	X	X	X	X	X	X	X	X	X	X
1.c	X	X	X		X	X	X	X	X	X	X
1.d	X	X	X		X	X	X	X	X	X	X
1.e	X	X	X		X	X	X	X	X	X	X
1.f	X	X	X	X	X	X	X	X	X	X	X
<b>Domain 2: The Classroom Environment</b>	Art of STEM Comm.	Intro to Teaching STEM Subjects	Field Exp. in Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Prog.	Tchng. Seminar	Intern- ship
2.a	X	X	X	X	X	X	X	X	X	X	X
2.b	X	X	X	X	X	X	X	X	X	X	X
2.c	X	X	X	X	X	X	X	X	X	X	X
2.d	X	X	X	X	X	X	X	X	X	X	X
2.e						X	X	X	X	X	X
<b>Domain 3: Instruction</b>	Art of STEM Comm.	Intro to Teaching STEM Subjects	Field Exp. in Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Prog.	Tchng. Seminar	Intern- ship
3.a	X	X	X	X	X	X	X	X	X	X	X
3.b	X	X	X	X	X	X	X	X	X	X	X
3.c	X	X	X	X	X	X	X	X	X	X	X
3.d	X	X	X	X	X	X	X	X	X	X	X
3.e	X	X	X		X	X	X	X	X	X	X
<b>Domain 4: Professional Responsibilities</b>	Art of STEM Comm.	Intro to Teaching STEM Subjects	Field Exp. in Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Prog.	Tchng. Seminar	Intern- ship
4.a	X	X	X	X	X	X	X	X	X	X	X
4.b						X	X	X	X	X	X

4.c										X	X
4.d						X	X	X	X	X	X
4.e					X	X	X	X	X	X	X
4.f					X	X	X	X	X	X	X
<b>Section II: Law and Process</b>											
<b>1. TESS Objectives</b>	Art of STEM Comm.	Intro to Teaching STEM Subjects	Field Exp. in Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Prog.	Tchng. Seminar	Internship
1.1					X					X	X
1.2					X					X	X
1.3										X	X
1.4										X	X
1.5										X	X
1.6										X	X
<b>2. TESS Teacher Requirements</b>	Art of STEM Comm.	Intro to Teaching STEM Subjects	Field Exp. in Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Prog.	Tchng. Seminar	Internship
2.1										X	X
2.2										X	X
2.3										X	X
<b>3. Framework for Teaching Design</b>	Art of STEM Comm.	Intro to Teaching STEM Subjects	Field Exp. in Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Prog.	Tchng. Seminar	Internship
3.1										X	X
3.2										X	X
3.3										X	X
3.4										X	X
<b>4. TESS Evidence Collection</b>	Art of STEM Comm.	Intro to Teaching STEM Subjects	Field Exp. in Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Prog.	Tchng. Seminar	Internship
4.1										X	X
4.2										X	X
4.3										X	X
4.4										X	X
4.5										X	X
4.6										X	X



<b>5. TESS Rubric Formula</b>	Art of STEM Comm.	Intro to Teaching STEM Subjects	Field Exp. in Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Prog.	Tchng. Seminar	Intern-ship
5.1										X	X
<b>6. Arkansas TESS Teacher Tracks</b>	Art of STEM Comm.	Intro to Teaching STEM Subjects	Field Exp. in Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Prog.	Tchng. Seminar	Intern-ship
6.1										X	X
6.2										X	X
6.3										X	X
6.4										X	X
<b>7. Professional Growth Plan</b>	Art of STEM Comm.	Intro to Teaching STEM Subjects	Field Exp. in Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Prog.	Tchng. Seminar	Intern-ship
7.1										X	X
7.2										X	X
7.3										X	X
7.4										X	X
<b>8. Mentor Process</b>	Art of STEM Comm.	Intro to Teaching STEM Subjects	Field Exp. in Tchng. STEM	Know. & Learn.	Class. Inter.	Science Tchng. Methods	Math Tchng. Methods 1	Math Tchng. Methods 2	Tchng. Prog.	Tchng. Seminar	Intern-ship
8.1									X		X
8.2									X		X
8.3									X		X
8.4									X		X

v. Syllabi for the **NEW** STEM 4403 and the **REVISED** STEM 4506 and **somewhat NEW** STEM 2003 (which was already approved for use in our four other licensure areas which underwent program revisions in 2020)

### TEACHING SEMINAR (STEM 4403)

#### COURSE SYLLABUS

FALL 2022

Instructor: Peggy Ward  
Office: UTCH 109/ 946 W. Clinton Dr.  
Email: [pdward@uark.edu](mailto:pdward@uark.edu)  
Phone: (479) 575-3280 (ofc.)

Office Hours: By appointment  
Course Title: Teaching Seminar  
Course Number: STEM 4403  
Credits: 3  
Time: T 6:00-8:30 pm  
Location: UTCH 100/ 946 W. Clinton Dr.

**Introduction:** The main purpose of this class is to provide opportunities and support for secondary mathematics, science, and computer science interns to develop their teaching knowledge and skills with a strong reflective practitioner lens. In this course, teaching interns will develop more in-depth knowledge and skills of teaching practices (e.g. using assessments to inform instruction, classroom management, accountability, and etc.), develop greater confidence as classroom teachers, and prepare for the job hunt. Interns will meet with their University instructor to address field experiences, questions, professional development needs, licensure requirements, and to construct a professional e-portfolio. All readings, assignments, and discussions are designed to be highly relevant and practical for novice classroom teachers.

#### Course Textbooks & Other Requirements:

- Wong, H. K. & Wong, R. T. (2009) The first days of school: How to be an effective teacher (Book & DVD) 4th Edition. Mountain View, CA: Harry K. Wong Pub. ISBN-10: 0976423316
- Danielson, C. (2007). Enhancing professional practice: A framework for teaching (2nd. ed.). Alexandria, VA. ASCD
- Selected Readings (provided)
- Google Drive Account (for docs and sites) *NOT* associated with your University account.
- UA Blackboard

**Course Prerequisites:** Students should have (a) completed all requirements for their content area bachelor degree, (b) completed all required courses for their STEM Education Minor, (c) have an approved Background Check filed with the [ADEAELS](#), (d) registered for the [Teacher Education Program](#), and (f) it is highly recommended that teacher candidates have completed an application for graduation before they begin their internship.

**Corequisite:** Students should also be concurrently enrolled in STEM 4506 Teaching Internship, the capstone clinical experiences for students preparing for mathematics, science, or computer science teacher licensure.

**Course Description (in catalog):** This weekly seminar is designed to help mathematics, science, and computer science teacher interns address complex issues related to novice teaching experiences, including assessment and evaluation of student learning and teaching practice, classroom management challenges, and career readiness.

**Student Outcomes:** During this course, interns will:

- Develop and implement instructional strategies and resources that support differentiated instruction to meet the diverse needs of the students (TESS Domain 1)
- Develop a practical classroom management plan based on best practices (TESS Domain 2)
- Develop a formative assessment plan to use during an instructional unit.
- Analyze pre and post assessment data to improve teaching and learning (Tess Domain 3 and 4)
- Develop web-based technology skills typically used in schools and classroom environments.
- Create a professional ePortfolio to document teaching progress (TESS Domain 4) and to use during the job-hunting process.
- Complete licensure requirements

### SEMINAR GUIDELINES AND EXPECTATIONS

**Instructional Emphasis:** The weekly seminar class meets once a week on campus for 2 1/2 hours. In a supportive environment, teacher candidates share their experiences and work on solutions for difficulties they are experiencing. Course instruction will focus on different aspects of the TESS domains (e.g. classroom and time management strategies, parent/teacher communication strategies, school culture and dynamics that make up an effective middle school and high school system, as well as the legal and logistical issues in teaching.) The weekly seminar also provides a guided time for students to work on lesson and unit plans they will use during their teaching experiences, create their final teaching eFolio and professional website. Finally, the course also provides opportunities for teacher candidates to develop their resumes, participate in mock interviews, and explore and locate state employment information.

**Weekly Seminar Expectations:**

- Attend *all* class sessions.
- Actively participate in class discussions, activities, and discussion board.
- Complete all assignments thoroughly, professionally, and in a timely fashion.

**Attendance and Participation:** Consistent attendance and active engagement (via class discussions, readings, homework, questioning and curiosity, etc.) in the learning activities is expected and an important component to a course designed to help you develop into a teaching professional. If you are absent for *any* reason, you are responsible for missed course content. Check the Blackboard *Content* folder for information, ask your peers to update you on missed information, and feel free to contact your instructor as well. Unannounced quizzes, and interactive assignments given during class time can not be made up.

**Tardy:** Professionalism includes timeliness, participation, and engagement from beginning to end. Likewise, this is an expectation for class. Anything over 25 min. is considered an absence. Any missed unannounced quizzes or other assignments taken for a grade can not be made up if you are not present.

**Assignment Due Dates & Late Work Policy.** Only major assignment due dates are on the syllabus, but all assignment due dates are located on Blackboard. Most assignments are submitted electronically; therefore, they are due on the due date (and time). If you turn in assignments more than three days late without prior approval, you may lose 50% of the value of the assignment. **No assignments will be accepted one week after the due date** (unless prior approval has been given.) If you have extenuating circumstances, contact your instructor in advance of the due date to request an extension, specifying when you believe you can complete the assignment. Deadline extensions are at the discretion of your instructor on an individual basis.

**Readings:** Each week readings from your textbooks and other articles, made available on Blackboard, will be assigned. You should take notes on your readings and be prepared to discuss them in class and/or take a reading quiz the next class period, and/or respond to discussion prompts on Blackboard. Reading quizzes may/may not be announced.

**In-Class Discussions:** Active participation during class discussions is integral to processing information more effectively, hearing multiple perspectives, and developing more in-depth understanding about the processes of learning and teaching. Students are encouraged to develop a critical perspective toward ideas presented during class and toward information in general. Building on and reacting to other participants' comments is encouraged, and should be done in a respectful tone even if you disagree. This will create a safe atmosphere in which participants feel free to express their opinions and ideas. At various times in the course, discussion leaders may be appointed to lead in-class discussions and online discussions. More information and guidance will be provided at such a time.

**Discussion Board Assignments:** Active participation on the discussion board is also integral to engaging in professional discourse. Be aware there are staggered due dates on the discussion board: (a) The due date for your original post and (b) the date you should have completed your replies to your peers. The official due date listed on Blackboard reflects the due date for your original post. All responses to your peers' postings should be completed before the next class day (unless otherwise stated). When responding to your peers' postings, provide substantive feedback. Substantive feedback means students make connections to other ideas they think of in response, ask questions to clarify understanding, offer differing perspectives on topics, and they also agreeably disagree with their peers.

**Writing:** Writing is an integral part of the class. Clear articulation, support and analysis of ideas (personal and theoretical) are required. All work submitted for review and evaluation should be professional in appearance and content. Please observe proper English, grammatical, and mechanical rules of writing. If you struggle with writing, there is help available at the University's [Learning Enhanced Center](#). Also communicate with your instructor and ask for help from her as well.

**Work Outside of Class.** As per [academic policy 400.40](#), *the average student is expected to prepare for each class by engaging in a minimum of two hours of out-of-class work per week for each credit hour earned.*

**Course Schedule.** Your instructor will provide a *tentative* course schedule that you can use to get an overall view of course topics and assignment due dates. This schedule will change frequently, so it should be referenced frequently to note these changes (assignments, due dates, meeting dates, course discussion topics and etc.). Official information (assignment details and due dates can be found on Blackboard on the places where you submit them (discussion board and the submit assignments pages).

**Instructional Technology.** As with all teacher preparation coursework, candidates are expected to demonstrate technological competence in this course. Google applications (docs., forms, sites, etc.) are used regularly in this course. Students who struggle with using technological applications should contact [IT Services](#) and/or contact your instructor for additional help. If you are approaching a deadline and are struggling with the submission requirements, just email the completed assignment to your instructor and ask for help with the technology requirement.

In this course, Google Drive will be used a lot to share and submit documents and assignments. For these assignments, always *share* your documents so that “anyone on the Internet with this link can edit” before you submit any assignments to Blackboard for credit. To upload G. documents to Blackboard, copy and paste this link in the submission textbox.

**Professional Dispositions:** At all times students (preservice teachers) are expected to demonstrate professional and appropriate dispositions considered essential to effective teaching and learning. (See [Educator Disposition Assessment](#)).

**Remote Statement & Extenuating Circumstances:** This course is designed to be a face-to-face learning experience except for extenuating circumstances. If you must miss class due to an *emergency, an illness, or a positive COVID test (asymptomatic)*, email your instructor 12 hours in advance (or as soon as possible) and ask for remote access to the class. Students who are too ill to attend virtually may also request the class be recorded to be viewed at a later day. Students who are absent for non-extenuating circumstances may also request virtual access to the class. Virtual access will be offered at the instructor's discretion. However, because the class is designed for face-to-face teaching and learning, instruction will focus primarily on in-class interactions, not the virtual interactions.

To be counted for attendance, virtual students must do the same in-class activities as the students present in the classroom (although products may look different). **Just being logged into Zoom does not count as attendance.** It is the students' responsibility to actively engage in the lesson by using the chat box to respond to and ask questions, speaking up to be heard, etc. without any direct instructor prompting. Students are requested to keep cameras on if possible during all interactions with others. It is the student's responsibility to ask for instructor clarification immediately after

class as needed. All in-class assignments must be electronically submitted to the instructor by the end of class time to be considered for evaluation purposes. As a suggestion, have an in-class peer log into Zoom with their phone to actively communicate directly with you during group work and class activities.

### COURSE EVALUATION

**Course Grades** are determined by the following assignments and criteria. More details for each assignment will be provided on separate documents.

Assignment Descriptions	% Value
Completion of the <a href="#">AR Licensure Requirements</a>	10
Weekly participation (in class assignments, readings, discussions, quizzes, presentations, etc.) in seminar class	30
Classroom Management Plan	20
Assessment Analysis -	20
E-Professional Portfolio & TESS Project:	20
TOTAL	100%

Notes: You are expected to attend seminar classes weekly. Failure to attend any session will result in a reduced grade for participation. If you turn in assignments more than three days late without prior approval, you may lose 50% of the value of the assignment. No assignments will be accepted one week after the due date

## TEACHING INTERNSHIP (STEM 4506)

### COURSE SYLLABUS

FALL 2022

Supervisor:	Peggy Ward
Office:	UTCH 109/ 946 W. Clinton Dr.
Email:	<a href="mailto:pdward@uark.edu">pdward@uark.edu</a>
Phone:	(479) 575-3280 (ofc.) (479) 216-0229 (cell)
Office Hours:	By appointment
Course Title:	Supervised Clinical Teaching (Teaching Internship)
Course Number:	STEM 4506
Credits:	6
Time:	M-F 7:30- 4:00 (or same as mentor teacher)
Location:	At assigned local junior high and high schools

#### Course Textbooks & Other Requirements:

- Google Drive Account (for docs and sites). **Recommendation: Create a Google account *NOT* associated with your University account.** Contact [UA Help Desk](#) for IT help if you need it: (479-575-2905).
- Blackboard

**Course Prerequisites:** Students should have (a) completed all requirements for their content area bachelor degree, (b) passed all three Praxis exams required for their certification areas, (c) completed their preliminary portfolio evaluation, (d) completed all required courses for their STEM Ed minor, (e) have an approved Background Check filed with the [ADEAELS](#), (f) been accepted in the [Teacher Education Program](#), and (g) it is highly recommended that teacher candidates have completed an application for graduation before they begin their internship.

Co-Requisite: Students should also be concurrently enrolled in STEM 4403, Teaching Seminar, a required weekly seminar course that will address experiences, questions and problems encountered in the field. Co-Req [STEM 4403](#).

#### Course Description:

The teaching internship is the apprenticeship experience for students preparing for mathematics, science, or computer science teacher licensure. Interns will teach full-time in secondary schools with mentoring provided by university supervisors and experienced classroom educators. A required weekly seminar will address experiences,

questions and problems encountered in the field. Co-Req STEM 4403. *Licensure program requirements should be completed before the internship semester.*

**Course Goals:** The goal of the apprenticeship experience is to provide teacher candidates the experiences, information, and coaching that will enable them to be successful teachers who are also leaders in their schools and communities. More specifically, teaching TCs will...

1. Develop evidence-based instructional quality
2. Develop professional practices to improve teaching and learning
  - a. Develop teacher accountability practices.
  - b. Consistently reflect on teaching practices.
  - c. Actively seek to make professional contributions.
3. Develop teacher self-empowerment and teaching self-efficacy.
4. Attain licensure readiness and prepare for teacher employment.

**Course Objectives:**

- Design instruction appropriate for all students that reflects an understanding of relevant content and is based on continuous and appropriate assessments. (Domain 1: Planning and Preparation)
- Utilize instructional strategies and classroom practices to effectively differentiate instruction for all learners. (Domain 2 & 3: Learning Environments and Instruction)
- Create a classroom environment of respect and rapport that fosters a positive climate for learning, equity, and excellence. (Domain 2: Learning Environments)
- Promote student learning by providing responsive instruction that makes use of effective communication techniques, instructional strategies that actively engage students in the learning process, and timely high-quality feedback. (Domain 3: Instruction)
- Fulfill professional roles and responsibilities by adhering to legal and ethical requirements of the profession; reflecting on instruction and student learning to assess instructional effectiveness; engaging in professional development to enhance teaching praxis. (Domain 4: Professional Responsibilities)

**CLINICAL EXPERIENCE**

The clinical experience (i.e. internship) is an integral and vital part of the STEM Education secondary teacher licensure program. It is a full-time field experience that allows interning teachers to make further application of theoretical principles of teaching and learning. It is an opportunity to develop appropriate attitudes and understanding and to acquire knowledge, skills, and techniques under the guidance of knowledgeable and experienced content specific mentor teachers. The internship reinforces and expands on teaching strategies that students have developed through their coursework and previous field experiences.

The clinical experience begins with the fall or spring semester of the partner school and ends with *dead day* prior to University graduation. The STEM Ed clinical experience consists of two rotations in a middle school and a high school environment (approx. 7 & 9 weeks in duration respectively). The TCs will select their preference for teaching at the middle or high school level for longer rotation. The first rotation will always be in the middle school environment.



The internship includes observations, modeling, co-teaching and teaching immersion. Teacher candidates are expected to actively observe and note policy at the beginning of each rotation to prepare for the teaching phase, and gradually assume full teaching responsibilities in all relevant classes for the majority of teaching internship. Near the conclusion of the semester, the mentor teacher gradually resumes all teaching responsibilities, allowing time for the teacher candidates to observe other teachers in the building and/or district.

**Teacher Candidate Expectations:** STEM Ed teacher candidates will adhere to the policies and guidelines of the STEM Ed Program. The following list of expectations are minimal guidelines and are not all inclusive. (Please discuss any questions or concerns about these with the University supervisor.)

Teacher candidates will:

- Attend school every day, all day for the teacher clinical experience unless there is an illness or documented emergency clearly beyond the teacher candidate's control.
- Communicate with the mentor teacher, the partner school, and the University supervisor *prior* to an emergency or necessary absence, tardy, or early departure. Provide a written (e.g. email) explanation to the mentor and the University supervisor at your earliest convenience.
- Eventually take on all of the duties of the mentor in all appropriate classes autonomously for the majority of the teaching internship.
- Assist the mentor teacher in performing certain duties, including bus, lunch, and playground; sponsoring or helping with classroom parties, sponsoring special field trips or other projects, and participating in team projects.
- Plan and teach one to three instructional units <sup>[[SEP]]</sup> in each class.
- Submit lesson plans in advance to the mentor teacher, and revise as requested.
- Recognize and accept that the mentor teacher has the ultimate responsibility for what you may or may not do in the classroom.
- Make yourself available for regular planning and feedback sessions with your mentor teacher and your University instructor.
- Continuously assess your growth as a teacher. Use observational feedback to target specific improvement and continually enhance your teaching skills.
- Demonstrate proficiencies in teaching and obtain documentation through observations and reflections:
  - Schedule at least 4 formal *formative* observations per rotation (2/mentor and 2/University supervisor).
  - Schedule at least 2 formal *summative* evaluations (1/mentor and 1/University supervisor)
  - Prepare for each observation by providing lesson plans and other necessary paperwork and information for each observation at least 24 hours in advance.
  - Maintain written and oral communication with mentor teacher and University supervisor in a prompt and professional manner.
- Know and follow the rules, regulations, and policies of the school.
- Maintain an ethical and professional attitude toward all members of the school community.
  - This includes the use of any confidential information you may obtain through student records, conversations, etc.
- Be professional in appearance, attitude, and in both oral and written communication
- Attend regular faculty meetings.
- Meet the principal and administrative staff and become familiar with the school climate and culture.
- **Communicating with Families:** Teacher candidates are expected to establish meaningful relationships with parents and families. They should formally introduce themselves and explain their role through written communication. Open communication should be established and maintained through notes, phone calls, and visits with knowledge and approval of the partnership school.

- **Other Duties:** In addition to teaching assignments, teacher candidates are expected to assist mentor teachers in performing certain duties, including bus, lunch, and playground; sponsoring or helping with classroom parties, sponsoring special field trips or other projects, and participating in team projects. The commitment of teaching extends beyond the school day and often to weekends. Teacher candidates having campus or community commitments or job responsibilities that interfere with the quality of assigned work may be required to withdraw from the clinical experience.

## PROFESSIONALISM & ETHICS

All teacher candidates will be judged by the quality of their teaching and by their conduct and overall disposition while representing the University of Arkansas and the STEM Ed Program in the public schools. Teacher candidates must at all times behave at the highest professional level in this program. Failure to uphold the highest standards of professional and ethical behavior could result in removal from the clinical experience and the STEM Ed Program.

**Promptness and Attendance:** Promptness and regular attendance are a part of each candidate's professional requirements. Adequate travel time should be allowed to arrive at the school setting on time.

Teacher candidates are to be present *every day* (unless there are preapproved circumstances), all day for the teacher clinical experience unless there is a serious illness or documented emergency clearly beyond the TC's control. Pre-approved circumstances may include attendance at professional conferences or University events that are required or highly encouraged (e.g. ACC, Career Readiness Seminar, Career Fair, teacher workshops, science fair judges etc.)

Should an absence be absolutely necessary, teacher candidates should inform the mentor teacher, the partnership school, and University supervisor prior to the assigned time of arrival at school. *Absences due to illness or other emergencies as described above may need to be made up at the end of the term at the discretion of the mentor teacher and University supervisor.* Otherwise, absences and tardiness may result in a reduced grade, an incomplete, failure, or dismissal from the program. Should it be necessary for TC to leave school for the same reasons, they should call/text/email the University supervisor prior to departure.

Teacher candidates are expected to attend any and all activities as mutually agreed upon by the partnership team, which consists of the university supervisor, mentor, and school principal. Attendance at regular faculty meetings is expected. In addition to teaching assignments, teacher candidates are expected to assist mentor teachers in performing certain duties, including bus, lunch, and playground; sponsoring or helping with classroom parties, sponsoring special field trips or other projects, and participating in team projects. The commitment of teaching extends beyond the school day and often to weekends. Teacher candidates having campus or community commitments or job responsibilities that interfere with the quality of assigned work may be required to withdraw from the clinical experience.

Teacher candidates will attend all parent-teacher conferences which do not conflict with regularly scheduled University classes or cohort meetings. The teacher candidates gain insight by attending conferences which address all issues such as placement in special classes, retention, behavior modifications, and so on.

**Dress Code & Hygiene:** Professional dress and grooming are expected from all candidates. Each candidate will confer with the partnership team regarding appropriate dress for the cohort setting. Failure to abide by this code could result in suspension from the clinical experience. Because the teacher candidates are always on a virtual interview for future employment, they should dress to convey a desire to impress potential employers. Also you are working in close contact with a lot of people who are sensitive to odors. Please maintain impeccable hygiene standards, and do *not* wear perfume or cologne.

**Professional Organizations/ Meetings:** Attendance at professional meetings and conferences is beneficial and a critical part of professional development and professional behavior. *Teacher candidates are expected to explore professional development opportunities beyond the classroom, including attending relevant workshops and conferences, subscribing to education journals, joining professional organizations, and conducting presentations in educational settings.* When meetings and conferences outside the immediate purview of the partnership school and district are offered, teacher candidates are encouraged to attend. Depending on the nature of the PD events, as determined by the University supervisor, teacher candidates may be granted professional leave to attend conferences and subsequently not be counted absent or otherwise penalized.

Teacher candidates are strongly encouraged to join their appropriate state and national professional organizations. Membership offers multiple benefits to emerging professionals including access to relevant disciplinary resources and a subscription to a professional journal. Joining a professional organization is significantly cheaper for students.

- [Arkansas Science Teachers Association](#) (ASTA)
- [National Council for Teachers of Mathematics](#) (NCTM)
- [National Science Teachers Association](#) (NSTA)
- [National Association of Biology Teachers](#) (NABT)
- [American Association of Chemistry Teachers](#) (AACT)
- [American Association of Physics Teachers](#) (AAPT)

**Ethics:** The [Family and Educational Rights and Privacy Act \(FERPA\)](#) is a Federal law that protects the privacy of students educational records. Student records and information relating to parents, school, staff, and administrative personnel are professional concerns. Confidential matters relating to either school activities or to teacher or pupil behaviors are NOT to be discussed with persons outside the professional experience. Some examples of confidential matters would include, but are not limited to, students' IQ scores, individual achievement test scores, psychological test information, or any other test results used to determine eligibility for special programs; names of students on free or reduced lunch; family information gained from parent-teacher conferences or from student records; student conduct, behavior, and/or discipline issues.

As part of your teaching and learning experiences, you will submit multiple assignments that ask you to reflect on student success in your class. It is a FERPA violation to reveal student identifying information without the parents' written consent. Therefore, when referencing students' names and identifying information, use a pseudonym rather

than actual names, and make sure any identifying information is removed from documents before submitting them for assessment purposes.

**Code of Ethics of the Education Profession:** STEM Education and The College of Education and Health Professions Education Preparation Provider (EPP) adheres to the Code of Ethics of the Education Profession as established by the National Education Association. Teacher candidates are expected to adhere to the [NEA's code of Ethics for Teachers](#), the [Ethics Code for Arkansas Educators](#), and the guidelines as established by the University of Arkansas and the College of Education and Health Professions. Violation of these principles may result probation, suspension, or dismissal of the internship. Principles I and II are described below:

**Principle I: *Commitment to the Student.*** The educator strives to help each student realize his or her potential as a worthy and effective member of society. The educator therefore works to stimulate the spirit of inquiry, the acquisition of knowledge and understanding, and thoughtful formulation of worthy goals.

In fulfillment of the obligation to the student, the educator –

1. Shall not unreasonably restrain the student from independent action in the pursuit of learning.
2. Shall not unreasonably deny the students' access to varying points of view.
3. Shall not deliberately suppress or distort subject matter relevant to the student's progress.
4. Shall make reasonable effort to protect the student from conditions harmful to learning or health and safety.
5. Shall not intentionally expose the student to embarrassment or disparagement.
6. Shall not on the basis of race, color, creed, sex, national origin, marital status, political or religious beliefs, family, social or cultural background, or sexual orientation, unfairly –(a) exclude any student from participation in any program, (b) deny benefits to any student, and (c) grant any advantage to any student.
7. Shall not use professional relationship with students for private advantage.
8. Shall not disclose information about students obtained in the course of professional service unless disclosure serves a compelling professional purpose or is required by law.

**Principle II: *Commitment to the Profession.*** The Education profession is vested by the public with a trust and responsibility requiring the highest ideals of professional service. In the belief that the quality of the services of the education profession directly influences the nation and its citizens, the educator shall exert every effort to raise professional standards, to promote a climate that encourages the exercise of professional judgment, to achieve conditions that attract persons worthy of the trust to careers in education, and to assist in preventing the practice of the profession by unqualified persons.

In fulfillment of the obligation to the profession, the educator –

1. Shall not in an application for a professional position deliberately make a false statement or fail to disclose a material fact related to competency and qualifications.
2. Shall not misrepresent his/her professional qualifications.
3. Shall not assist any entry into the profession of a person known to be unqualified in respect to character, education, or other relevant attribute.
4. Shall not knowingly make a false statement concerning the qualifications of a candidate for a professional position.
5. Shall not assist a non-educator in the unauthorized practice of teaching.

6. Shall not disclose information about colleagues obtained in the course of professional service unless disclosure serves a compelling purpose or is required by law.
7. Shall not knowingly make false or malicious statements about a colleague.
8. Shall not accept any gratuity, gift, or favor that might impair or appear to influence professional decisions or action.
9. The full document of the Code of Ethics may be found at <http://www.nea.org/code.html>.

**Corporal Punishment.** Corporal punishment is the responsibility of the public school district. The teacher candidate must not administer corporal punishment nor serve as a witness to corporal punishment.

**Firearms and Restricted Items.** Teacher candidates are not permitted to have a firearm or other restricted items such as knives, mace, pepper spray, laser pointers, and so on in his/her bodily possession at any time while on school property. All school grounds are declared firearms, tobacco, alcohol and drug free. Smoking, the use of smokeless tobacco, the use of alcohol or any illegal drug(s) are prohibited at all times.

### **Teaching in the Absence of Certified Personnel**

The academic University programs set their own guidelines for teaching in the absence of certified personnel. Please check with the program director as to the specific guidelines to follow. Candidates must also contact human resources and/or personnel offices in the school/district for the particular requirements to follow.

In order to meet Arkansas licensure requirements set forth by CAEP and the Arkansas Department of Education, teacher candidates must have the equivalent of a minimum of 60 school days or 420 contact hours of supervised teaching. Due to the above stated licensure requirement and to concerns of liability, the teacher candidates may be allowed to assume individual responsibility for classroom teaching only if the following conditions are met:

- The principal and other members of the partnership team approve the assignment.
- The teacher candidate has already demonstrated the ability to successfully assume full teaching responsibilities.
- The teacher candidate is a strong teacher with effective classroom management skills.
- The teacher candidate is already familiar with the classroom setting where he/she would be assigned.
- In the event of an emergency, a mentor teacher should be sent to that classroom; the teacher candidate should be entitled to remain in a situation where he/she has had some experience.
- Teacher candidates may not administer medication, nor are they allowed to perform medical procedures such as cauterization or trachea cleaning.
- Attendance at class and cohort meetings is mandatory even when teacher candidates are acting as a substitute teacher in his/her classroom.
- If a teacher is out of the building, the teacher candidate will be paid for substitute teaching. If a teacher remains in the building, the teacher candidate may substitute teach, but will not be paid.
- The partnership team may approve a long-term substitution in extreme cases

**Council for the Accreditation of Educator Preparation (CAEP):** As mandated by the state of Arkansas, the University of Arkansas must maintain accreditation through CAEP in order to certify teachers in all of their program areas. Faculty members and teacher candidates are required to collect assessments needed to provide evidence that our graduates are qualified in their content areas, that they are competent teachers, and that they have a positive effect on student learning.

STEM Ed graduates are certified to teach specific content areas. Therefore, all of the assessments are related to their coursework and expertise in their respective disciplines. Many of the assessments also require evidence from their performance in their field placements.

**Teaching Standards and Competencies:** Secondary preservice science and math teachers must demonstrate knowledge and competency in their licensure areas.

- [The Arkansas Teaching Standards \(2012\)](#) identify competencies for all new teachers in all Arkansas colleges and universities. Each of the course objectives specific to this course are aligned with these standards. (See [Course Objectives and Standards Alignment](#).)
- Preservice math and science teachers should also be knowledgeable of the national content specific teaching standards:
  - Math: [NCTM CAEP Standards \(2012\)](#)
  - Science: [2012 NSTA Preservice Science Standards](#).
- [Ethics for Arkansas Educators](#)- The Code of Ethics for Arkansas Educators defines minimum standards of ethical conduct for all licensed educators (effective 2008).
- Passing Praxis Subject Area scores
- STEM Teacher Education participants must demonstrate knowledge of Mathematics, Chemistry, Life Science, Physics, or Computer Science. See the [AR Educator Competencies](#) for these subjects.

**Scholar-Practitioners:** Graduates from the University of Arkansas are expected to be scholar-practitioners who advocate for the learning of all children in diverse settings. The scholar-practitioner reflects a professional who is knowledgeable about subject matter and pedagogy; skillful in teaching and managing classrooms and schools; supportive of students, families, school staff and the community; and a professional who continues to learn and who embodies ethical behavior. These four scholar-practitioner tenets are described below:

- **Knowledgeable.** Professional educators must possess general knowledge, content knowledge, pedagogical knowledge, and professional knowledge to be effective. They must know how to access, use and generate knowledge. In order to be current, they must be inquiring and up to date on new knowledge in their content, pedagogy, and school systems.
- **Skillful.** This includes the pedagogy required to be an effective teacher, administrator, or other school professional. Aspects of a skillful teacher are planning, implementing, and modeling best practices including best technology practices.
- **Supportive.** Creating a supportive learning environment for all students and communicating that the educator is there to support student learning is another vital aspect of our graduates. This includes being supportive and responsive to the diverse backgrounds our students bring to the classroom and school. The ability to communicate and collaborate with groups of colleagues and others who contribute to the student's education such as families and communities is also essential.

- **Professional.** As scholars, candidates are expected to continue to inquire and seek to improve their practice. Candidates also participate in professional communities. This involves staying current with educational research and working with appropriate professional organizations to better the professions. The professional candidates demonstrates ethical behavior in all aspects of their multi-faceted

**Teacher Excellence and Support System (TESS):** The teacher education programs at the University of Arkansas have adopted the Charlotte Danielson Frameworks (see [Smart Card](#)) for evaluating preservice teacher performance. Each teacher candidate will receive at least five formative observations and three summative evaluation. The evaluations will be uploaded to Blackboard for accreditation purposes. (See [Summative Evaluation Form](#))

All candidates are expected to receive a average score of *proficient* (2.5+) on their final *combined* summative evaluations. Failure to achieve this standard will result in the TC completing an Intensive Professional Learning Plan (IPLP) document and submitting it to the instructor for approval.

## **PROGRAM, COLLEGE, AND UNIVERSITY POLICIES**

### **Procedure for Addressing the Problem of Weak or Challenged Interns**

Although teacher candidates are admitted to the STEM Ed program only after meeting established criteria, issues and concerns regarding performance may arise. In an attempt to resolve these situations to the satisfaction of everyone involved, the following procedures should be followed in the established order. All steps of the procedure may not be necessary and are not required. Each step assumes the issue was not resolved in the previous step:

1. Mentor communicates concerns to the teacher candidate and University supervisor. If not resolved, then...
2. University supervisor/STEM Ed faculty member communicates concern to the teacher candidate.
3. Partnership team develops a plan of action in writing.
4. Partnership team confers with teacher candidate to communicate and/or refine the plan of action.
5. The teacher candidate, mentor teacher, and University supervisor sign the agreed upon plan of action.
6. Opportunity to implement the plan to address the concern with support and frequent feedback from the mentor and University supervisor.
7. Follow up conference is conducted to evaluate progress.
8. If concerns are not adequately addressed appropriate action will be taken. (See Dismissal Policy

**[Educator Disposition Assessment \(EDA\)](#):** The STEM Ed faculty will complete at least two Educator Disposition Assessments (EDA) on all interns during upper level course-work requiring a field-based experience. Mentors will also provide EDAs early in the field experience at both the middle and high school levels. A mandatory face-to-face meeting between the intern and the UA Supervisor is required when/if an intern receives a score of “needs improvement” on any section of the EDA to discuss the issues and to target specific strategies to improve these dispositions.

**Notification of Concern (NOC):** An electronic Notification of Concern (NOC) process was developed to identify, assist, and monitor teaching candidates who exhibit issues that could prevent them from being successful professionals. The NOC form is used by UA Teacher Education faculty and the Office of Teacher Education (OTE) to alert candidates, the Teacher Candidate Professional Review Committee (TCPRC), and the teacher education assessment system to problems that may prevent a candidate from successfully completing the teacher education program. **The NOC is reserved for only those situations that, if not corrected or addressed, will be a significant barrier to success in the teaching profession.** The process involved with the NOC form is focused on helping the candidate, and may include tracking concerns, and identifying and applying action plans designed to alleviate the concerns. In some cases, however, it may also be used to identify candidates who should seriously consider changing majors. This form should be filled out as completely and specifically as possible. When appropriate, the faculty should involve the candidate in reviewing the information on the NOC, and inform the candidate before it is filed. Goals of the NOC are to:

- Identify and correct issue early
- Support the teaching candidates in addressing issues
- Clarify procedures to be followed when students fail to correct the issue
- Provide systematic documentation and follow-up to support faculty, department heads, and advisors in addressing such issues

### **Withdrawals**

If it becomes necessary for a teacher candidate to withdraw from the clinical experience, it is the responsibility of the teacher candidate to provide a written explanation to the mentor teacher and the University faculty. The teacher candidate is expected to follow standard University procedures to withdraw from school. In addition, a teacher candidate whose progress is considered unsatisfactory by the mentor teacher and the University faculty, if applicable, may be withdrawn from the clinical experience by the Associate Dean of Academic Affairs in COEHP. Should the teacher candidate be permitted to re-enroll in a clinical experience at a later date, he/she may be advised of additional coursework and/or additional requirements necessary before being allowed to re-enroll. Re-enrolling is neither guaranteed nor automatic.

### **Grievance or Appeal Procedures**

During the clinical experience, problem situations may arise which require special attention. When such situations do arise, it is recommended that specific procedures be followed to resolve the problem at the level closest to the situation prior to moving to the next level. If a teacher candidate believes that a situation is becoming uncomfortable and could lead to a poor experience, he/she should first discuss these concerns with the mentor teacher and University supervisor. If unresolved at that level, the school principal and UA Director of Field Placement should also be consulted. The third level involves the University of Arkansas Department Heads and the Associate Dean for Academic Affairs in the College of Education and Health Professions along with the public school superintendent.

Problems that remain unresolved may be appealed through the normal procedures established by the College of Education and Health Professions.

### **Dismissal Policy**



Teacher candidates may be dropped from the STEM Ed program if at any time their performance is considered unsatisfactory as determined by the school/district, and the STEM Ed supervisor, and program faculty. Academic dishonesty and failure to maintain a specified cumulative grade-point average may lead to immediate dismissal from the clinical experience program and/or University of Arkansas. Academic dishonesty involves acts that may subvert or compromise the integrity of the educational process at the University of Arkansas. Included is an act by which a student gains or attempts to gain an academic advantage for himself/herself or another by misrepresenting his/her or another's work or by interfering with the completion, submission, or evaluation of work. See the University of Arkansas's Catalog of Studies under "Academic Regulations" for a more detailed description.

Teacher candidates are expected to comply with rules, regulations, and expectations of the school/district in which they are placed. It is the teacher candidate's responsibility to obtain a copy of the school manual, handbook, policy guidelines, or master contract for teachers, and become familiar with it. Upon request from the school where the teacher candidate is placed, the clinical experience may be terminated by the school's administration at any time during the experience. If a teacher candidate is removed from the clinical experience setting under such circumstances, a subsequent placement is neither automatic nor guaranteed. This may also lead to immediate dismissal from the STEM Ed program. Further, teacher candidates are expected to adhere to the NEA's code of Ethics for Teachers, Principle I and Principle II, the Ethics Code for Arkansas Educators, and the guidelines as established by the University of Arkansas and the College of Education and Health Professions.

Any teacher candidate who has been convicted of a felony is not allowed to participate in the STEM Ed program. Teacher candidates who have been arrested for crimes which could result in a felony conviction may be removed from their clinical experience placement pending legal resolutions. Please note that the Division of Elementary and Secondary Education will not issue a teaching license to individuals with a felony conviction.

**University Inclement Weather:** When the University has officially canceled classes because of inclement weather this class will not meet. At other times if you feel the weather is so bad that you would risk an accident to get to class, you are responsible for making your own best decisions in these instances.

For information regarding whether the university is closed for any reason use the following sources:

- See the [Inclement Weather](#) website for more information.
- Call 479-575-7000 or university switchboard at 575-2000 for recorded announcements about closings
- Check voicemail for announcements
- Listen to KUAF Radio, 91.3 FM, or other local radio and television stations for announcements.
- Check the NWA Online News for current closings: <http://www.nwaonline.com>
- If you haven't already done so, you need to sign up for the university's RazALERT Emergency Notification System on your UAConnect account.

**Field Placement Inclement Weather:** Be advised and alert to the possibility that the public school where you are interning may close even when the University has not. For information regarding current school closings consult the following sources:

- Check school websites for closing information
- Consult the NWA online news for current school closings: <http://www.nwaonline.com>

NOTE: At any point in time, the expectation is that you will use sound judgment concerning your personal safety.

**Students with Disabilities:** University of Arkansas Academic Policy 1520.10 requires that students with disabilities are provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact me privately within two weeks of the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through the Center for Educational Access Room 104 in the Arkansas Union (Contact 479-575-3104 or visit <http://cea.uark.edu> for more information on registration procedures).

## COURSE EVALUATION

**Course Grades** are determined by the following assignments and criteria and are contingent upon teaching the specified number of days. More detail regarding specific grading criteria for each assignment will be provided.

ASSIGNMENTS & EXPECTATIONS- DESCRIPTIONS	% Value	Point Value
<sup>1</sup> Weekly participation (in class assignments, readings, discussions, quizzes, presentations, etc.) in seminar class	10%	100
<sup>2</sup> Course Assignments		
<ul style="list-style-type: none"> <li>● Biweekly Internship Reports (IR) (8)- <b>due every two weeks (typically)</b></li> </ul>	10%	100
<ul style="list-style-type: none"> <li>● Classroom Management Plan</li> </ul>	10%	100
<ul style="list-style-type: none"> <li>● Assessment Analysis -</li> </ul>	10%	100
<ul style="list-style-type: none"> <li>● E-Professional Portfolio &amp; TESS Project: An e-portfolio representing your professional attributes and teaching proficiency (incl. Resume &amp; TP). (See Assignments on the course website.)</li> </ul>	20%	200
<sup>3</sup> Completing field expectations; submitting 8 formative evaluations; 2 summative evaluations (from mentor and UA Supervisor) with passing scores on each of the four domains. <b>Your final score is an average of both summative scores.</b> ( <sup>3</sup> See Rating Scale below.)	40%	400
Assignment Submissions (You must turn in electronic copies of all the following assessments, which are used for the UA accreditation purposes.): <ul style="list-style-type: none"> <li>● Mandated Reporter</li> <li>● Ethics Training</li> <li>● TESS Summative Assessment (UA Professor)</li> <li>● Educator Disposition Assessment (EDA)</li> </ul>	Req.	n/a
Completion of the <a href="#">AR Licensure Requirements</a>	Req.	n/a
TOTAL	100%	1000

<sup>1</sup>You are expected to attend seminar classes weekly. Failure to attend any session will result in a reduced grade for participation. <sup>2</sup>To encourage everyone to hand in all assignments, late work will be accepted but may be reduced by 10% for each week (or part of a week) of lateness. For more information and details, see *Assignments* on the course website. <sup>3</sup>**Rating Scale Used on Summative Evaluation: 3.5 - 4.0 = Distinguished (95-100); 2.5-3.4 = Proficient (84-94); 1.5-2.4 = Basic (70-83); 1.0-1.4 (<70) = Unsatisfactory**

See the ADE (2017) [Proposed Rules Governing the Teacher Excellence and Support System](#) (currently under revision)

# Syllabus for STEM 2003 The Art of STEM Communication (the new course that is an Option for students to enter the program instead of ARSC 1201/1212)

## STEM 2003 The Art of STEM Communication

*If scientists can't communicate with the public, with policy makers, with one another, the future is going to be held back. We're not going to have the future that we could have -Alan Alda*

### Course Information

Department of Curriculum & Instruction; College of Education & Health Professions  
Instructor; Office; Office Hours: Contact Information: Course Location TBA

### Course Description

It is widely known that breakdown of communication contributes to mistrust and misunderstanding of the scientific enterprise. In this dynamic, interdisciplinary course including guest lectures, socio-scientific issues, and theatre-style methods, students will learn to communicate complex STEM topics clearly and effectively using research-based practices from the field of education.

**Prerequisites** This course is designed for STEM majors and minors.

### Course Textbook and Materials

- Alda, A. (2017). *If I understood you, would I have this look on my face?* Random House.
- Olson, R. (2018). *Houston we have a narrative: Why science needs story.* University of Chicago Press.
- Additional assigned readings will be provided through class links or through Blackboard

### Course Goals

Scientists, doctors, and engineers must be able to communicate clearly and persuasively the ideas and methods they use and generate. Likewise, critiquing and communicating ideas individually and in groups is an essential professional activity (Next Generation Science Standards *Science and Engineering Practices*, 2013). This course is designed to serve multiple purposes: a) to engage STEM majors in learning to communicate science concepts effectively to lay audiences, both in writing and in oral communication, b) to critically analyze socio-political issues in science, articulate one's own viewpoint, and understand viewpoints of a diverse population c) to interest students in pursuing either a career in STEM education and completing the teacher licensure program for secondary math, biology, chemistry, physics, or computer science, OR continuing with 6-12 credit hours of coursework to earn either a certificate or a minor to acquire pedagogical knowledge that will enhance their value as communicators in any STEM career, d) meet General Education Learning Outcomes 1.1, 1.2, and 3.4c-e) meet a University Core social sciences requirement by considering how individuals, groups, and institutions interact with science and socio-scientific issues, and f) meet Arkansas Teaching Standards 2,4-8 and TESS Competencies 1a-f, 2a-d, 3a-e).

STEM is an acronym for Science, Technology, Engineering, and Mathematics. Although communication of science is the main focus of this course, and science is acknowledged as its own discipline, the use of the term STEM acknowledges the interdisciplinary aspects of science.

Furthermore, with science as a human endeavor, this course reaches into the social sciences to fully understand the issues that surround it, and the need for STEM literacy and effective communication.

**Course Objectives** (Gen Ed Goals/learning outcome indicators are specified below)

## **I. Increase Understanding of the Societal Importance of STEM Literacy and the Need for Effective Communication of STEM Ideas**

- What is STEM literacy? Who decides what people should know? Experts in STEM education and other STEM fields have gathered to form a consensus, although not without controversy, on what people should know and learn about science and mathematics in the K-12 schools in order to prepare a scientific and mathematically literate society. These ideas are spelled out in frameworks such as the Next Generation Science Standards, the Common Core Mathematics Standards, and variations of these at individual state levels. *Students will learn to identify the content and disciplinary practice standards addressed in the presentations they give, and be able to articulate how understanding these disciplinary practices contributes to STEM literacy.* (1.2c, 3.4e)
- Guest speakers including professionals from STEM disciplines, medical professions, journalism, political science, and statistics will discuss the nature of their work and communication methods unique to their discipline, in relation to STEM issues. STEM professionals will present their experiences of how their work is perceived by the public and the challenges that they have in promoting understanding of their work and the evidence that they provide. *Students will engage in discussion with these guest speakers, identify relevant communication skills, and reflect in writing.* (1.2a,b, Goal 3, 3.4c,d.)
- Socio-scientific and socio-political controversies such as vaccinations and climate change will be discussed with expectations that *students will justify their assertions with credible sources, and critically analyze others' assertions with fact-checking and evidence, particularly when they create their own STEM Talk presentations and write an article on a STEM issue.* (1.1d,e, 1.2a,b,e, 3.4c,d,e)
- What goes wrong when people do not have the prior knowledge to understand a STEM issue in society, or have misconceptions? How science is presented in the media and how the public perceives it will be examined with the purpose of *identifying where communication breaks down when misconceptions occur relating to science, and when beliefs are not based on scientific evidence. In addition to learning ways to connect what people already know with what you want them to know, students will learn strategies to address misconceptions/pre-conceptions/alternate conceptions.* (1.1a, 1.2a,c, 3.4c)
- Living in a multi-cultural, diverse society, what considerations will help ensure that all people can attain STEM literacy? What considerations will help communicate STEM information to a diverse audience? *Students will learn to enhance communication with a diverse audience, by increasing social and cultural awareness and empathy, and being attentive to common misconceptions.* (1.2a)

## **II. Learn Research-based Strategies for Communicating Complex STEM Information and Issues** (the strategies/objectives below support Learning Outcomes 1.1a-d, 1.2a-d, 3.4e)

- Organizing/outlining a verbal or written presentation to present ideas coherently
- Identifying the objectives of the information to be conveyed and evaluating at the end that your objectives have been met
- Assessing the audience's prior knowledge
- Engaging your audience; involving them and connecting with them to keep them engaged;

- Checking in with the audience to assess understanding along the way; using techniques to keep them attentive
- Using questioning techniques that help clarify thinking and generate critical thinking
- Breaking down complex material into ‘bite-size’ chunks
- Being aware of technical vocabulary and making it accessible to an audience
- Finding multiple ways to present an idea or concept, different representations, different angles of approach, that help deepen understanding and allows for connections between concepts
- Being aware of the diversity of the audience and responding accordingly to different perspectives
- Soliciting and incorporating feedback to improve writing and presentations
- Reflecting on presentations based on audience feedback with intent to improve future communication

### III. Consider STEM Career Pathways

- Discussion of how the various STEM professions value effective communication, including medical professions, research scientists, and the teaching profession, may open up considerations of career options that promote STEM literacy\*.

*\*Students who complete STEM 2003 may continue with program courses to earn a 9 credit hour Certificate in STEM Communication, a 15 credit hour Minor in Secondary STEM Education, or complete the full 26 credit hour program to earn teacher licensure in mathematics, biology, chemistry, physics, or computer science.*

### Course Expectations

#### Participation and Attendance:

Students are expected to attend all classes to avoid missing essential information, experiences, and collaboration with groups/partners. Students will observe and learn from professionals in their field of study as well as develop and practice effective communication skills. Initial assignments will be conducted during class time; therefore, prompt and consistent attendance is critical for success in this class.

### Assessments

#### In-class Effective Communication Activities: (1.1a,d, 1.2a,b,c,d)

Students will be involved in a variety of effective communication and improvisation activities during the course to hone their communication skills. These will include active/responsive listening, improv training, empathy, cultural responsiveness, science as story-telling/narrative, making thinking visible, breaking down complex concepts into chunks, use of models/visual aids to explain a phenomenon, etc. Students will reflect on these activities in their journals.

#### Journal Reflections: (1.1a, 1.2a,b, 3.4c)

Students will reflect on weekly guest speaker discussions, readings, and communication activities in a student journal. These reflections will include but are not limited to what they have learned about communication, what they can improve upon, and any takeaways that they deem necessary to acquire successful communication skills as a scientist, educator, or other professional. Students will write a total of 9 weekly journal entries, (300 words each). Every three weeks, students will summarize (500 words each) their weekly journal reflections which will include (a) an Aha moment (b) an improvement they made in their TED Talk/Video or other assignment, and

(c) an important takeaway from the previous three weeks to help track their growth in thinking about STEM communication. *(total writing for all reflections 4200 words)*

Effective Written Communication Assignments: (1.1a-e, 1.2a-e, 3.4c-e)

Students will critically analyze two articles (written for a lay audience) on a STEM issue for their clarity, effectiveness of argument, and how they are evidence-based. (300 words x 2).

Students will write an article on a STEM issue (1500 words), designed for a newspaper or journal with a general public audience, that conveys complex scientific information in a clear and engaging way, and cites sources to ensure credibility. Peers will critique one another's articles, evaluating the credibility and use of scientific information, and authors will revise for final submission. *(total writing for 3 assignments 2100 words)*.

2 STEM Talks (TED Talks): (1.1a-e, 1.2a-e, 3.4c-e)

Individual or pairs of students will conduct two 5-8 minute STEM (TED) Talks on a STEM topic of their choice, which they will develop and refine over several weeks. Students will research the topic to understand the complex and naturally-interdisciplinary nature of the issue and the multiple perspectives from which individuals approach issues related to the topic. They will create a written rough draft and present it through video. Students will upload STEM Talk #1 and #2 videos to the Blackboard discussion boards. Peers will comment on three videos based on a rubric looking for clarity and coherence of expression and presence of evidence. Students will refine their TED Talk based on comments and class discussions. They will present their final TED talks to the class and upload to Blackboard their final transcript (1000 words) and individual reflection papers (300 words) that address audience reaction, awareness of diversity of audience, and how the presentation could be improved. *(total writing 2600 words)*

Shark Tank: STEM Edition Final Presentation, Transcript, and Reflection (1.1a-e, 1.2a-e, 3.4c-e)

Students will work in groups of 2-3 to develop a Shark Tank-style pitch on a controversial STEM issue. (Shark Tank pitches can be of the same STEM issue but with different viewpoints.) Students will collect and organize information from multiple sources and disciplines to understand the complex and naturally-interdisciplinary nature of the issue and the multiple perspectives from which individuals approach the issue, vetting sources for credibility, and choose an argument to present with justification. They will create and administer a google form pre-assessment on the topic/issue to the class audience to gauge their prior knowledge, write a transcript of their presentation (1000 words), cite sources to back up arguments, and record a video of their presentation to upload to Blackboard discussion board. Students will comment on three other videos based on a rubric looking for clarity and coherence of expression and presence of evidence. Students will revise their transcript and refine their Shark Tank pitch based on feedback to prepare for the 5-8 minute final presentation to the class. They will collect feedback from the audience on clarity of presentation and how convinced the audience was by the evidence provided for the argument. Individual final reflections will be written (300 words) that addresses the audience reaction, awareness of diversity and responsiveness of audience, and how the presentation could be improved. Final transcript and reflection paper will be uploaded to Blackboard. *(total writing 1300 words)*

Assignments/Grading

Participation/Attendance (5 pts per class period)

Due Date

Points

150

Weekly Journals - 9 entries

90

Journal Reflection Summary #1	50
Journal Reflection Summary #2	50
Journal Reflection Summary #3	50
STEM Talk #1 Transcript, Video, and Blackboard Comments/feedback	100
STEM Talk #1 Presentation, Final Transcript, and Reflection	100
STEM Talk #2 Video and Blackboard Comments	100
STEM Talk #2 Presentation, Final Transcript, and Reflection	100
<i>Effective Written Communication Assignments:</i>	
Article Critique #1	50
Article Critique #2	50
Newspaper or Journal Article for General Public	150
Shark Tank: STEM Edition Initial Transcript, Feedback, and Video	100
Shark Tank: STEM Edition Final Presentation, Final Transcript, and Reflection	100

**Total Points Possible**

**1240 points**

## Resources

National Research Council. 2013. *Next Generation Science Standards: For States, By States*. The National Academies Press.

VI. NO CHANGES TO COMMON ASSESSMENTS

VII. NO CHANGES TO FIELD EXPERIENCES

## 5. Transition Plan

Students will be advised that they do not need to enroll in CIED 4023, and for their internship semester, they will enroll in STEM 4506 and STEM 4503.