

New Business Item 20-35

Introduced April 16, 2021

Approved April 16, 2021

A. TITLE: Consideration of Provisional Approval of the University of Hawaii at Manoa's College of Education Added Field Licensure STEM Program

The Hawaii Teacher Standards Board accepts HTSB Review Team recommendation to grant provisional state approval to the University of Hawaii at Manoa's College of Education Master of Curriculum Studies STEMS² program to add fields to an existing Hawaii license.

The state approved teacher education (SATE) review team recommends provisional approval for the license fields of STEM K-6 and 6-12 added field program.

Program Strengths

- The coursework is appropriate and valuable to teachers who are adding the field of STEM (K-6 and 6-12).
- The assessments submitted by the program have the potential to provide strong evidence for meeting all pertinent standards. Each assessment is supported by a well-written rubric.
- The development of a sense of place and hands-on learning experiences are strong components of the program.
- All faculty listed are suitable for this field of study.

Any Weakness or Recommendation for Improvement

- None

The program may recommend completers for added field licensure for the following license fields:

- STEM K-6, 6-12

The program may also recommend previous program completers if they meet the same criteria required by the current program approved for licensure.

This program shall be included in the provider's 2028 accreditation review.

Submitted by: Branden Kawazoe

Referred to: Teacher Education Committee

**HAWAII TEACHER STANDARDS BOARD
REVIEW TEAM REPORT OF
THE UNIVERSITY OF HAWAII AT MANOA’S COLLEGE OF EDUCATION
PROPOSAL
FOR AN ADDED FIELD PREPARATION PROGRAM IN THEIR
MASTER OF EDUCATION IN CURRICULUM STUDIES STEMS²
TO ADD THE FIELDS OF STEM K-6 AND STEM 6-12**

SATE REVIEW TEAM RECOMMENDATIONS

The State Approved Teacher Education (SATE) Review Team recommends provisional approval for the Master of Education in Curriculum Studies **STEMS² K-6 and 6-12** added field program.

RATIONALE

Program of Study: The coursework is appropriate and valuable to teachers who are adding the field of STEM K-6 or 6-12.

Standards & Assessments: The assessments submitted by the program have the potential to provide strong evidence for meeting all pertinent standards. Each assessment is supported by a well-written rubric.

Faculty: All faculty listed are suitable for this field of study.

REVIEW TEAM MEMBERS

- Carolyn Gyuran, Education Consultant
- Dr. Jonathan Gillentine NBCT, Learning Consultant
- Felicia Villalobos, HTSB Licensing Specialist

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PROVIDER INFORMATION

Name of Provider: Nathan Murata

Provider Contact: nmurata@hawaii.edu

PROGRAM CONTACT

College of Education
 1776 University Avenue, 128 Everly Hall
 University of Hawaii at Manoa
 Honolulu, HI 96822

PROGRAM INFORMATION

Program Director: Amelia Jenkins

Name of program: Master of Education in Curriculum Studies - STEMS²

License Field(s) and Level(s) to be offered: STEM K-6, 6-12 as an added field

Projected Implementation Date: August 01, 2021

PROGRAM JUSTIFICATION:

It is reported that there is a shortage of STEM teachers nation-wide with more than half of the school districts in the U.S. reporting difficulty in recruiting and retaining qualified STEM teachers. The UHM COE seeks to address the teacher shortage by preparing educators with the knowledge and expertise in STEM disciplines.

DESCRIPTION OF COURSEWORK AND CLINICAL EXPERIENCES

List courses	Catalog description plus more if needed
Curriculum Studies 4 Required Core Courses (12 credits)	Educational leadership courses required in all Curriculum Studies programs.
EDCS 606	Introduction to Research in Curriculum and Teaching (3)

	<ul style="list-style-type: none"> Classroom-based research covers the fundamentals of qualitative, quantitative, action research, mixed methods, and curriculum-based assessment. Exploratory, explanatory, and confirmatory research will be highlighted culminating in an outline for Plan B/Thesis proposal.
EDCS 622G	<p>Curriculum Leadership: K–14 (3)</p> <ul style="list-style-type: none"> Foundation for critical study of curriculum development and improvement from the perspective of teacher leaders K-14.
EDCS 632	<p>Qualitative Research Methods (3)</p> <ul style="list-style-type: none"> Methods of qualitative research in education or related social science from an interdisciplinary framework.
EDCS 667	<p>Seminar in Curriculum (3)</p> <ul style="list-style-type: none"> Curriculum trends and issues related to school organization, program, administration, faculty. Required for Plan B MEd candidates in their final semester or summer session.
STEMS² Electives 6 Elective Courses (18 credits)	<p>As a cohorted program, all students take courses below as part of the programmatic scope and sequence. The courses below are combined in order to support learning the principles and practices of STEM and interdisciplinary education with the integration of place and culture-based education.</p>
EDCS 417	<p>STEM Pedagogy (3)</p> <ul style="list-style-type: none"> Provides introductory information to individuals new to the field of STEM education. Designed to integrate educational theory, pedagogy, content, and practical concerns into teaching practices in the STEM fields.
EDCS 440	<p>Curriculum Implications of Multicultural Education (3)</p> <ul style="list-style-type: none"> Examination of trends, issues, school practices, and program in multicultural education and its related area of study–bilingual-bicultural education.
EDCS 640J	<p>Seminar in Science (3)</p> <ul style="list-style-type: none"> Study in trends, research, and problems of implementation in teaching fields related to science education.

EDCS 640M	Seminar: Interdisciplinary Education (3) <ul style="list-style-type: none"> • Study in trends, research, and problems of implementation in teaching field related to interdisciplinary education.
EDCS 640P	Seminar: Place Based Education (3) <ul style="list-style-type: none"> • Study in trends, research, and problems of implementation in teaching field related to place-based education.
EDCS 654	Ethnomathematics (3) <ul style="list-style-type: none"> • Research and practice in ethnomathematics from an interdisciplinary framework. Analysis of ethnomathematics content knowledge and pedagogy; connections among curriculum, standards, and classroom practice; examination of theory and research; and building sustainable campus-community networks.

ASSESSMENTS, SUPPORTING COURSEWORK, AND ASSESSMENT DESCRIPTION

Assessments/rubrics specific to the program: List when assessments are administered and describe each assessment. Attach template and grading rubric for each assessment.

Name of Assessment	Courses supporting completion of assessments	Description
Capstone Projects <ul style="list-style-type: none"> • STEMS² Unit Plan • Plan A Thesis or Plan B Paper/Project 	Content required for completion of these projects is integrated across all program course work. There are two capstone projects that are supported across the 13 months of the STEMS ² program.	
STEMS ² Unit Plan <i>InTASC standards alignment: 4,5,6,7 & 8</i>	EDCS 417, EDCS 440, EDCS 640J, EDCS 640M, EDCS 640P, EDCS 654	STEMS ² units are interdisciplinary content units designed specifically to support place and culture-based instruction. In the Spring semester the Unit that students design will be implemented and evaluated in some form. Final Units are submitted in the final Spring semester and added to the STEMS ² website for public use

		<p>in the final Summer of the program. Units must include the following parts:</p> <ul style="list-style-type: none">● Overview of the STEMS² unit/justification – What is the community/school/classroom context this unit is designed for? What will the unit cover overall and how will it be taught and why? Why have you selected to create/teach this specific unit? What impact do you suspect this unit will have on the students/participants of this unit? Answers to these questions should be addressed via use of education research literature and practical experience (included in Stage 1).● A clear and detailed assessment/evaluation plan (included in Stage 2).● A sequence of lessons focused around one theme and clearly driven by an understanding of STEMS² theory and pedagogy (included in Stage 3) and STEM content standards. Each lesson of the unit should be written with a level of detail that would allow other teachers having no knowledge of your unit to implement it in their teaching and learning spaces.● You must use the STEMS² Unit Plan Front Matter Template to organize all content <u>except</u> for the individual detailed lesson plans. You may use the Lesson Plan Template. <p>Assessment timeline</p> <ul style="list-style-type: none">● Semester 1 (Summer 1) - Submit STEMS² Unit Proposal● Semester 2 (Fall) - Submit first draft of STEMS² Unit
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		<ul style="list-style-type: none"> ● Semester 3 (Spring) - Submit final STEMS² Unit ● Semester 4 (Summer 2) - Make suggested revisions to Spring submission and post to the STEMS² Curriculum site. <p>Assessment Rubric</p>
<p>Plan A Thesis or Plan B Paper/Project <i>InTASC standards alignment: 9&10</i></p>	<p>EDCS 606, EDCS 622G, EDCS 632, EDCS 667</p>	<p>Students have a choice of capstone options.</p> <ol style="list-style-type: none"> 1. Plan A Thesis or Plan B Paper that contributes an original research study in STEM education. 2. A Plan B Project to address problems of practice related to STEM Education. Students will identify an issue within their community/organization where there is a disconnect between the research base on a topic of interest and the practice that is implemented on the ground. They will create a project to address the need for informed practices that reflect the current base of research. <p>Assessment Timeline</p> <ul style="list-style-type: none"> ● Semester 1 (Summer 1) - Submit Prospectus ● Semester 2 (Fall) - Complete IRB Approval ● Semester 3 (Spring) - Plan A/Plan B Spotlight presentations (2 required presentation on Plan A/Plan B progress) ● Semester 4 (Summer 2) - Plan A/Plan B Defense and submit final product (i.e, paper or project) <p>Assessment Rubric</p>

PROGRAM FACULTY

Faculty Member Name	Highest Degree & Area of Concentration	Role in Program	Professional Experience Relevant to Program
List faculty who typically teach courses in this program			
Tara O’Neill	PhD	Director, Instructor & Plan B Advisor	<ul style="list-style-type: none"> ● PhD in Science Education ● MS in Secondary Science Education with a focus in Biochemistry ● BA in Molecular Biology ● Developer of the STEMS² theory and pedagogy ● Co-design of the MEd CS STEMS² (design with Joe Zilliox) ● 22 years teacher and research experience in the fields of Science and STEM education (Middle and High School).
Kapono Ciotti	PhD	Instructor & Plan B Advisor	<ul style="list-style-type: none"> ● PhD in International education ● Masters degree in Social Change and Development ● Bachelors in Language and Cultural Studies ● 20 years experience as a teacher (K-6), school administrator (K-12) and teacher coach (K-12) ● 15 years experience as a culture and place-based curriculum writer, focusing on culturally appropriate pedagogy. With the Pacific American foundation, he has written for the Kai E’e, Malama Kaho’olawe and Aloha ‘Aina curriculums and

			facilitated numerous trainings for Department of Education and Charter schools.
Lori Fulton	PhD	Instructor & Plan B Advisor	<ul style="list-style-type: none"> ● PhD Teacher Education ● MEd Elementary Education ● 20+ years experience in elementary science education ● Expertise in science discourse, science notebooks, science discourse and teacher professional development
Eomailani Kukahiko	PhD	Instructor & Plan B Advisor	<ul style="list-style-type: none"> ● PhD in Curriculum and Instruction ● MEd Curriculum Studies ● BEd Hawaiian Immersion Education ● BA Hawaiian Studies ● 20 years in place and culture-based education ● Expertise in ethnomathematics
Summer Maunakea	PhD	Instructor & Plan B Advisor	<ul style="list-style-type: none"> ● PhD in Curriculum & Instruction ● Master of Education in Teaching ● Bachelors in elementary education ● Expertise in interdisciplinary place and culture-based education
Kirsten Mawyer	PhD	Instructor & Plan B Advisor	<ul style="list-style-type: none"> ● PhD Learning Sciences ● Expertise in secondary science education with specific focus on Ambitious Science Teaching; Culture & Place-Based Science Education; Disciplinary

			Literacy; Preservice Science Teacher Education
Shari Jumalon	MEd	Instructor EDCS 440	<ul style="list-style-type: none"> ● Master in Secondary Education ● Nationally Board-Certified middle school Science and Language Arts educator ● 25 years of experience and expertise in place, culture-based and project-based learning. ● Currently Kua o ka La New Century Public Charter School as an online educator for grades 6th through 12th grade. ● Developed curriculum for the Worldwide Voyage and the Ethnomathematics Institute incorporating STEM
Ramsey Fiorello	MEd	Instructor EDCS 417	<ul style="list-style-type: none"> ● BA in Special Education ● MEd in Curriculum and Instruction ● Experience as an elementary special education teacher ● Currently a High school math, science and special education teacher at a Hawaiian focused charter school ● Expertise in ethnobotany. ● Alumni of STEMS² Cohort 1.
Stacey Prellberg	MEd	Instructor EDCS 417	<ul style="list-style-type: none"> ● BA in Elementary Education ● MEd Curriculum & Instruction ● Experience teaching K-6 integrated STEM with

			<p>expertise in community and project-based learning.</p> <ul style="list-style-type: none"> ● Currently a Specialist at the College of Education designing and facilitating culture and place-based teacher professional development ● Alumni of STEMS² Cohort 1
Waynele Yu	MEd Completing PhD in Learning Technology	Instructor EDCS 417 & EDCS 440	<ul style="list-style-type: none"> ● BA in Business ● MEd Curriculum & Instruction ● PhD Learning Technologies (ABD) ● Experience in High Education instruction and evaluation and professional development. ● Expertise in computer technology and learning technologies. ● Alumni of STEMS² Cohort 1

SUPPORTING INFORMATION

- See attached [Letters of Support](#) from the Director of Hawai'i Department of Education.
- See [linked video presentation](#) shared highlighted in the *National Science Foundation, 2020 STEM for All Video Showcase*, explaining the STEMS² construct and connecting to STEM content.
- See attached [Alignment between MEd CS STEMS² and InTASC Standards](#).
- See attached [document highlighting sample STEM content learning experience](#) integrated throughout the 13 month program
- See [link](#) to website STEMS² website

REVIEW TEAM RECOMMENDATION TO HTSB

The state approved teacher education (SATE) review team recommends provisional approval for the license fields of STEM K-6 and 6-12 added field program.

Program Strengths

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Any Weakness or Recommendation for Improvement

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Follow-up Questions from the Review Team

- For students pursuing Plan A, where are the Plan A advisors imbedded in this process?

Answer: Students can pursue one of two options for their capstone project, a Plan A or Plan B. Depending of the project path students select that are assigned a Plan A or Plan B advisor at the start of the Fall semester of their program. To date students have only selected the Plan B pathway. This is why only Plan B advisors are listed in the application. Below is a more detailed description of the difference between the Plan A and Plan B.

Plan A:

Link to UH Manoa Graduate Description of a Plan A - <https://manoa.hawaii.edu/graduate/masters-plan-a/>

Plan B:

Link to UH Manoa Graduate Description of a Plan B - <https://manoa.hawaii.edu/graduate/masters-plan-b/>

- For students pursuing Plan A, what rubric(s) are in place for their Plan A thesis?
Answer: There is no specific rubric for the Plan A or the Plan B however student are required to follow the content guide [found at this link](#).
- In the Sense of Place (Nā Hopena A‘o and beyond) portion of the table located in the Unit Plan Front Matter Template, what information would be imbedded into this part of the table?

Answer: Student will share which Nā Hopena A‘o learner outcomes that are addressed in their unit. All students are required to align their unit plan development with Nā Hopena A‘o. The "beyond" part of the box provides the space for students to add other standards or learner outcomes not address by the primary standards (i.e., NGSS, Common Core, C3, etc...) or Nā Hopena A‘o. For example, Hawaiian Immersion school and some charter school have additional standards and/or learning outcomes.