Micro- credential for Interdisciplinary Food, Energy, Water Systems Analysis to Enhance STEM Graduate Students Experience

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Abstract

Graduate students are looking for ways to achieve their educational goals while expanding their skills beyond the traditional classroom setting to be more competitive in the workforce. Micro-credential and digital badges have gained popularity in recent years as a way to provide competencies, knowledge and skills quickly and effectively, especially as the needs of the workforce change faster than the curriculum. In addition, there has been an increased demand for transferable skills (e.g., communication, teamwork) among employers and a growing need to possess interdisciplinary skills to meet the needs of a dynamic world and an increasingly complex society.

This paper describes the development process and the delivery of an interdisciplinary micro-credential in Food, Energy, Water Systems Analysis for credit at the graduate level open to master's and PhD students. The interdisciplinary micro-credential consists of a one-credit, 700-level course, Intermediate Topics in Interdisciplinary Systems Analysis and a zero-credit hour, 700-level Interdisciplinary Seminar. The micro-credential is part of the MICRA project, a collaborative project funded by the National Science Foundation Established Program to Stimulate Competitive Research (EPSCoR). The MICRA project brings together engineers, mathematicians, soil and agricultural scientists, and agricultural economists/social scientists to create fundamental knowledge about soil moisture retention to benefit rural communities in the water stressed Central High Plains while building STEM research capacity. Graduate students from the College of Engineering and the College of Agriculture at Kansas State University and the College of Engineering at the University of Nebraska-Lincoln enrolled in this interdisciplinary micro-credential in fall 2025.

This paper discusses the micro-credential format, the team-teaching strategies, grading structures for the course and seminar, evaluation of students' experience and skills, and lesson learned. The micro-credential has been designed to equip students with technical skills to understand and analyze complex systems, in particular adaptive systems that relate to food, energy, and water systems and transferable skills such as team collaboration, science communication, and systems thinking. The one-credit, 700-level course, is a graded course. The seminar is offered on a Credit/No Credit basis, and students need to complete three out of four reflection assignments to receive credit.

Students' feedback indicates that through the micro-credential activities, they gained in their abilities to perform tasks that support technical systems analysis skills and transferable skills such as science communication and team collaboration. In addition, students found most course activities to be very useful for their skill building, in particular, faculty lectures, guest lectures, and student presentations. Finally, the structure of our interdisciplinary micro-credential can be beneficial to the development of an interdisciplinary micro-credential at the graduate level in other Higher Education Institutions.

Introduction

Nowadays, technical skills might be inadequate to be competitive in the workforce [1] – [4]. In addition to technical skills students require transferable skill, which are defined as generic, employable, professional such as communication and teamwork [5]. In 2020, transferable skills were a requirement in around 52% of businesses [6]. Thus, graduate students are looking for ways to achieve their educational goals while expanding their skills beyond the traditional discipline-specific setting so they can be more competitive in the workforce. Further, in a time where 'wicked' problems, which are complex, unclear, changing, and entangled appear everywhere, interdisciplinary systems analysis is a core ability for understanding and solving 'wicked' challenges [7]. The report by the National Academies of Sciences, Engineering, and Medicine on Graduate STEM Education for the 21st century noted that current and future global challenges, such as creating more resilient communities present scientific, technological, and societal challenges that require systems analysis abilities to solve [8]. In addition, employers from different sectors attested to the value of systems thinking and analysis abilities in the workforce [8]. In addition, there is a need to possess interdisciplinary skills to meet the needs of a dynamic world and an increasingly complex society [9], [10]. As academic departments often work in silos, there may be fewer opportunities for students from different departments to interact and gain the skills needed for interdisciplinary work. Thus, training that is solely discipline-specific can affect students' ability to be competitive in the workforce.

Micro-credentials are increasingly being adopted across various sectors, including Higher Education Institutions [11]. More employers are interested in the use of digital badges and believe that the inclusion of digital badges as a part of a potential employee's application packet would help them better understand the skills that a person may have coming into the job [12]. Thus, micro-credentials can give students a more refined understanding of their skills and provide a more detailed summary of their mastery to prospective employers. Despite growing adoption of micro-credentials, there is limited empirical work on credit-bearing interdisciplinary micro-credentials at the graduate level, particularly within food-energy-water (FEW) systems.

Since 1979, the U. S. National Science Foundation (NSF) has funded projects to enhance the research competitiveness of targeted jurisdictions (i.e., state, territory, or commonwealth) by strengthening STEM capacity and capability through its EPSCoR program [13]. As part of EPSCoR's focused collaborations program, the NSF has funded the MICRA project, an interjurisdictional collaborative project between higher education institutions in Kansas, Nebraska, and Oklahoma, Kansas State University (KSU), University of Nebraska-Lincoln (UNL), and Langston University. The MICRA project focuses on supporting rural livelihoods in the water-stressed Central High Plains by investigating methods to preserve soil moisture through soil amendments that increase soil water holding capacity, and their technological and socio-economic implications in irrigated fields. The MICRA project also advances workforce development via different activities including the development of the for credit interdisciplinary micro-credential at the graduate level that establishes a framework for interdisciplinary work and delivers solutions for creating resilient adaptive systems [14].

This paper discusses the interdisciplinary micro-credential format, team-teaching strategies, grading structures for micro-credential activities, evaluation of students' experience and skills, and lessons learned.

The author team is an interdisciplinary team and includes faculty and staff from the College of Engineering, the College of Agriculture, and the College of Education at KSU. The author team includes six people. Two are engineers, one is a soil scientist, one is an agricultural economist, and two are social scientists, with one of them being also a doctoral student in Leadership Communication. Several author team members have experience in systems analysis in engineering and social sciences as well as experience implementing systems analysis to solve complex wicked problems, in particular in the FEW nexus, which allowed us to develop an interdisciplinary micro-credential curriculum at the graduate level.

The Interdisciplinary Micro-credential

The for credit interdisciplinary micro-credential in Food, Energy, Water Systems Analysis (the micro-credential) at the graduate level was approved by KSU College of Engineering, the Graduate School, and the Faculty Senate in spring 2025 and was offered for the first time in fall 2025 [14]. This micro-credential provides graduate students an opportunity to interact with faculty and peers from different fields and develop skills needed to do interdisciplinary work including transferable skills, which are vital for future competitiveness and addressing wicked societal problems [6], [7]. Upon completion of the micro-credential activities, the one credit-hour course, ME710 Interdisciplinary Systems Analysis, with a grade of at least B, and the 0-credit hour seminar, ME711 Interdisciplinary Seminar, by completing three out of four reflection activities, students receive a digital credential for specific skills, issued via the Credly platform. Upon completion of the micro-credential, students earn foundational badges representing that core skills in interdisciplinary systems analysis, team building, science communication, systems thinking and FEW systems analysis have been achieved, and that they have a beginner level mastery of these skills. Ten graduate students from KSU and UNL enrolled in the micro-credential in fall 2025. Of the ten students, eight were Ph.D. students (Five students from KSU and three students from UNL) and two master's students from KSU. Student majors span a vast range of academic fields from Agricultural and Biological, Chemical, Civil and Environmental, and Mechanical Engineering to Agricultural Economics and Agronomy. Next, we will discuss in detail the micro-credential activities, the one-credit hour course, ME 710, and the 0-credit hour seminar, ME 711.

ME 710 Course Structure

ME 710 The Interdisciplinary Systems Analysis course (the course) is a framework to systems analysis, with specific applications to the FEW nexus. The course introduces students to systems analysis via the systems thinking lens [15]. Systems thinking is an approach for examining complex events and systems in a holistic way and serves as a framework for better understanding linkages and connections between systems and their components [16], [17]. The course materials integrate engineering, economics, agronomy, and social science with a focus on adaptive systems in rural agricultural contexts. The course is a one-credit hour and required to complete the micro-credential. The class meets weekly for 50-minutes. It was offered for the first time in its current format in fall 2025. It is based on the NRT Integrated FEW Systems course that was taught every fall semester from 2019 to 2022 [18], [19] and had been adjusted to meet the micro-credential objectives and the faculty team's expertise. The course is co-taught by engineering, agronomy, and social science faculty from KSU. In general, the course runs as two-week modules with a mix of lectures, class discussions, student presentations, and class activities where instructors provided a prompt for students to think individually and/or small groups and share their insights with the broader class. The course includes readings, individual reflection assignments, a policy memo, individual system component maps, and a final individual project, that involves developing an integrated system map. Ten graduate students from KSU and UNL participated in the course. The course was in a hybrid mode where seven students participated in the course in person or synchronous, and three students were asynchronous. Students who participated asynchronously listened to the class recordings and completed the same course assignments via Canvas. Students from UNL enrolled into the course via the Innovative Digital Education Alliance (IDEA), in which KSU and UNL are members. Through IDEA, students do not need to worry about transferring credits to their home institutions. The IDEA campus coordinator served as the students' information broker and helped with enrollment and course access [20].

The course is designed to be dynamic and iterative. It uses a conceptual tool, Loopy, a web based interactive software tool for thinking in systems [21], to teach systems analysis. Systems modeling and simulations have been utilized as an instructional and conceptual help in interactive learning environments and have been promoting understanding of complex material by conceptualization [22] – [24]. Loopy allows students to model systems by drawing circles for the system components and arrows for their interactions and simulates how the system they created runs. Students used positive and/or negative feedbacks to balance the system. The expected learning outcomes for the course are to conceptualize key FEW systems' elements, links, process, and dynamics; to interpret system elements, links, processes, and dynamics from multiple perspectives, using narrative and visual tools; to cultivate an awareness of diverse perspectives of FEW system stakeholders; to translate scientific, disciplinary knowledge for diverse audiences, to communicate across disciplinary boundaries; and to work collaboratively with interdisciplinary partners to diagnose and address FEW system challenges.

The course format, content team teaching strategies, and grading structures encouraged systems thinking approach to systems analysis. Students attended in person and virtually faculty guided lectures designed to introduce systems analysis via systems thinking framework with specific application to the FEW nexus. Topics that were discussed in the course were systems basics, soil systems, energy systems, water systems, human-social systems, and the interactions between these systems as shown in Table 1.

Table 1: The course schedule

Date	**Topic**
Week 1	Introduction and overview: The Ogallala High Plains Region overview
Week 2	introduction and overview: Systems basics
Week 3	Introduction to Loopy
Week 4	Introduction and overview: Systems basics cont.
Week 5	FEW natural systems: Engineering/Technical Aspects – Soil systems
Week 6	FEW natural systems: Engineering/Technical Aspects - Soil systems
Week 7	FEW human systems: Economic Aspects

Week 8	FEW human systems: Economic Aspects
Week 9	FEW natural systems: Engineering/Technical Aspects - Energy
Week 10	FEW natural systems: Engineering/Technical Aspects - Energy
Week 11	FEW natural systems: Engineering/Technical Aspects – Water
Week 12	FEW human systems: Human Aspects
Week 13	FEW natural systems: Engineering/Technical Aspects - Water
Week 14	FEW human systems: Human Aspects
Week 15	FEW systems: Bringing it all together

Course Assignments and Grading

The course weighted assignments included reflections and analyses (40%), system component maps (40%), and a final project, which was an integrated system map (20%). All assignments were individual assignments. Ten assignments contributed to the final grade in the course. For the reflections and analyses, students read the material assigned for a session ahead of class and submitted written responses to questions prior to class through Canvas. Readings were assigned from an open-source textbook, The Macroscope: A New World Scientific system [25] and from journals. The readings and reflections allowed students to come ready to discuss and analyze the material in class. One of the analysis assignments included a policy memo in which students applied economic concepts they were introduced in class in reviewing a FEW issue that has economic significance. The memo emphasizes concise writing of scientific topics to a general audience. Each instructor was responsible for grading their own assignments. For the system component maps, students created a map of the system that was discussed in class using Loopy, a web based interactive software tool for thinking in systems [21]. With Loopy, students created a map of the system by determining the system's boundary and drawing circles and arrows. The maps included at least one positive feedback loop that moves the system away from an equilibrium, one negative feedback loop that brings the system to an equilibrium, one flow (e.g., water, energy, data, money), and one reservoir (e.g., river, aquifer). Once students completed the map, a Loopy file and a link were submitted on Canvas. In addition to the map, students submitted a narrative (at least 100 words) that described the system they created in Loopy. Students gave a brief in class presentation to explain their Loopy design. Students, who participated asynchronously, submitted a short video presentation (2 minutes long) to explain their Loopy verbally. For the final project, the integrated system map, students created a map using Loopy that integrated the system component maps they created throughout the semester along with a narrative (at least 1000 words) that explained and interpreted the integrated system. Students also had to prepare an 8–10-minute video presentation that enabled them to play the Loopy and explain it verbally. An example of an integrated system map is shown in Figure 1. The systems component maps were graded by the faculty, who taught the system, and the integrated map was graded by the course lead faculty.

Figure 1: An Integrated System Map that shows sustaining agricultural productions across farms in in Finney County, Kansas while maintaining the resources (e.g., water, energy) that support farm viability.

ME 711 Seminar Structure

ME 711 The Interdisciplinary Seminar (the seminar) was offered virtually in fall 2025 semester. The students who participated in the course also participated in the seminar. The seminar is a 0-credit-hour seminar series on a Credit/No Credit grade, which includes monthly session of 50 minutes throughout the semester. The seminar sessions alternated between professional development and research talks sessions and were delivered synchronously online. In fall 2025, the seminar included topics on the use of AI in writing and research, AI and data analysis, visual thinking strategies, and entrepreneurship and commercialization. Visual Thinking Strategies (VTS) is a methodology for leading and participating in discussions about complex, ambiguous materials. VTS was developed in art museums, and has spread to other fields including engineering education [26], [27]. Internal and external guest speakers led the seminars. Students completed a reflection activity after each seminar session. Scholarship related to reflection has been growing within engineering education [28]. The seminar's reflection activities included two to three questions about what students learned from the seminar and the perceived connection to their future academic, research, and career activities. To receive credit for the seminar, students must complete three out of four reflection activities.

Methodology

The Office of Educational Innovation and Evaluation (OEIE) serves as the MICRA project external evaluator. The external evaluation's purpose is to provide sound evidence of progress toward project goals and impacts through an understanding of what works, under what circumstances, and why. OEIE uses a developmental evaluation approach to best support and inform ongoing progress. This approach is particularly useful to support innovation and adaptation in complex environments by integrating real-time evaluative thinking into program development [29].

To better understand students' experiences during the micro-credential, the team asked the students to complete a micro-credential evaluation survey at the end of the fall semester. The survey elicited students' feedback on the utility of the micro-credential activities, the course and the seminar, and the effectiveness of the micro-credential activities overall in developing technical (systems analysis) and transferable skills as well as supporting career planning. To gain insights on how the micro-credential activities supported students' skills development, the survey used pre retrospectively and post experience ratings [30].

The development of the survey occurred in November 2025. The MICRA external evaluator drafted the evaluation survey based on the team's priorities for the micro-credential and its activities. The survey was administered by the external evaluator to the 10 students through a survey link sent to the MICRA staff, who shared the link with students in class on December 10, 2025, the last day of class. The survey link remained open until December 23, 2025, and nine students completed the survey with a response rate of 90%. After closing the survey, the evaluator analyzed the survey data by calculating arithmetic means, standard deviations, and percentages on scaled items, and coding qualitative responses for themes. To improve validity of the analysis the evaluation survey results were shared with the team [31].

Results: Students' Experiences

To elicit feedback about student experiences with the micro-credential activities overall, we asked students to give the micro-credential a grade for supporting their development of five skills, a mixed of technical and transferable skills, where a grade of 'F' is 1 point, and a grade of 'A' is 5 points. These five skills are interdisciplinary systems analysis, team building, science communication, systems thinking and FEW systems analysis. Then we calculated mean student rating for each skill. Figure 2 offers a look at student ratings for how well the micro-credential activities overall supported development of the five skills. Students rated the micro-credential similarly for each skill, with a grade between 4.4 and 4.7, which is an 'A.'

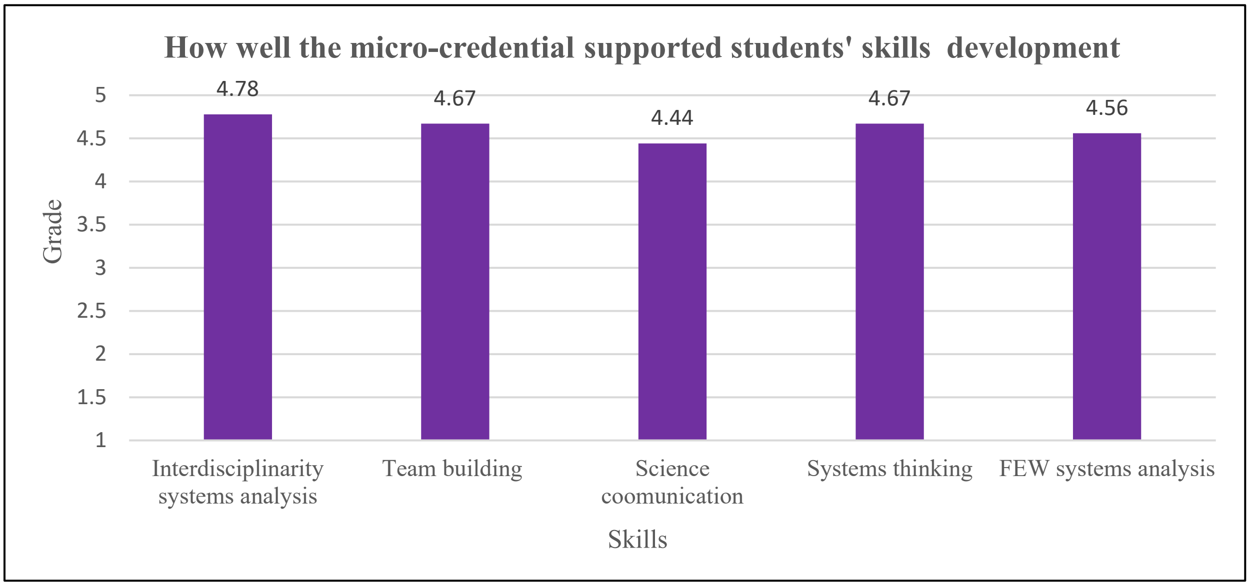

Figure 2: Students gave the micro-credential a grade for how well it supported students' interdisciplinary systems analysis skills development

In addition, we asked students if the micro-credential has helped them with their career planning. As seen in Figure 3 below four out of nine students (44.4%) somewhat and strongly agreed that the micro-credential has helped their career planning. Students mentioned that the micro-credential has helped by bringing their attention to elements outside of their field of study that affect systems analysis, including policy and economics.

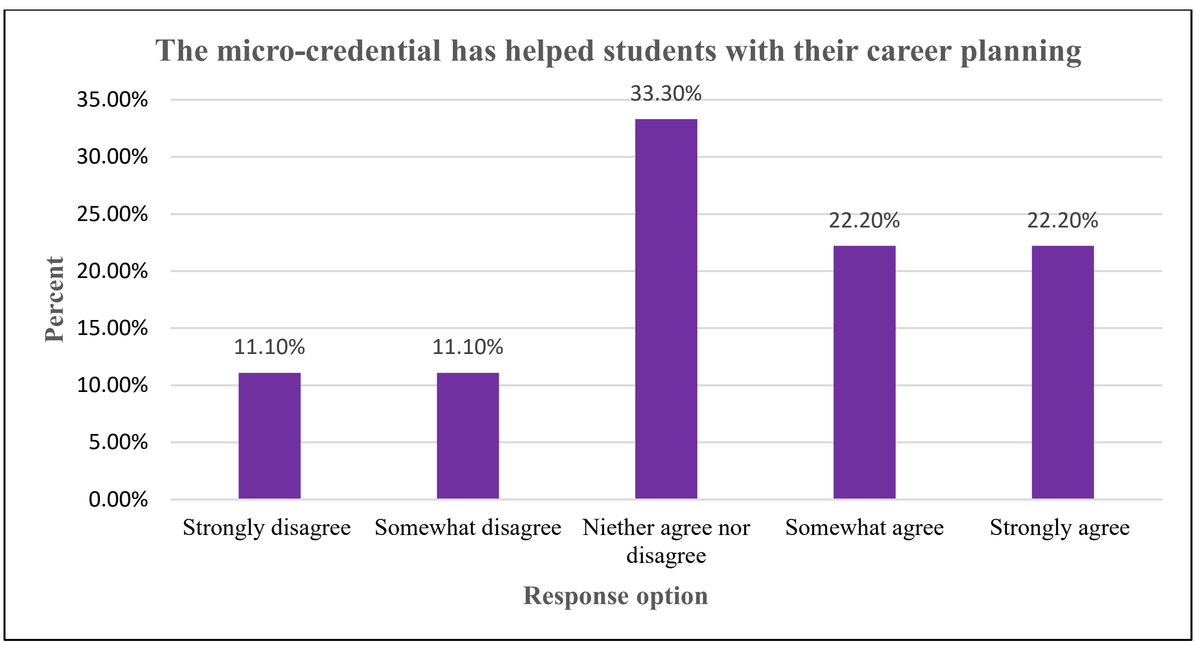

Figure 3: Students agreement on the impact of the micro-credential on their career planning

Further, to gain insight into how students were building skills critical for systems analysis, the micro-credential survey asked them to rate their ability to perform a short list of key tasks before, retrospectively [29] and after participating in the micro-credential activities, the course and the seminar. For the course, the tasks are collaborating on interdisciplinary teams; communicating scientific, disciplinary knowledge to diverse audiences; being aware of different perspectives of FEW stakeholders; conceptualizing key FEW systems' elements, links, processes, and dynamics; and interpreting systems elements, links, processes, and dynamics from multiple perspectives. For the seminar, the tasks are identifying potential research partnerships across multiple disciplines and articulating how my research can become interdisciplinary. Survey respondents selected ratings from a five-point scale where 1=not at all able, 2=a bit able, 3=somewhat able, 4=very able, 5=extremely able.

As results in Table 2 and Table 3 show, students felt that their skills for the course five tasks and the seminar two tasks improved over the time they participated in the micro-credential activities. For example, before participating in the course, only 11.1% students felt 'very' able to conceptualize key FEW systems' elements, links, processes, and dynamics while after participating in the course, this rating increased to 77.8% of students who felt 'very' able to carry out the task. Another example, before participating in the seminar no students felt 'very' able to articulate how their research can become interdisciplinary and only 11.1% felt 'very' able to identify potential research partnerships across multiple disciplines while after participating in the seminar 66.7% and 77.8% of students respectively felt 'very' able to carry out these tasks.

Table 2: Students' perceived gains in five abilities to carry out interdisciplinary systems analysis tasks *improved* from before to after participating in the micro-credential activity, the course

Perceived ability for key skills in the course	Not at all able	A bit able	Somewhat able	Very able	Extremely able
Conceptualize key FEW systems' elements, links, processes, and dynamics **Before** (n=9)	**0%**	**33.3%**	**44.4%**	**11.1%**	**11.1%**
Conceptualize key FEW systems' elements, links, processes, and dynamics **After** (n=9)	**0%**	**0%**	**11.1%**	**77.8%**	**11.1%**
Interpret system elements, links, processes, and dynamics from multiple perspectives **Before** (n=9)	**0%**	**22.2%**	**33.3%**	**44.4%**	**0%**
Interpret system elements, links, processes, and dynamics from multiple perspectives **After** (n=9)	**0%**	**0%**	**11.1%**	**66.7%**	**22.2%**
Cultivate an awareness of the diverse perspectives of FEW system stakeholders **Before** (n=9)	**11.1%**	**22.2%**	**22.2%**	**44.4%**	**0%**
Cultivate an awareness of the diverse perspectives of FEW system stakeholders **After** (n=9)	**0%**	**0%**	**0%**	**77.8%**	**22.2%**
Translate scientific, disciplinary knowledge for diverse audiences and communicate **Before** (n=9)	**11.1%**	**11.1%**	**22.2%**	**44.4%**	**11.1%**

Translate scientific, disciplinary knowledge for diverse audiences and communicate **After** (n=9)	**0%**	**0%**	**11.1%**	**55.6%**	**44.4%**
Work collaboratively with interdisciplinary partners to diagnose and address FEW system challenges **Before** (n=9)	**0%**	**33.3%**	**22.2%**	**33.3%**	**11.1%**
Work collaboratively with interdisciplinary partners to diagnose and address FEW system challenges **After** (n=9)	**0%**	**0%**	**0%**	**55.6%**	**44.4%**

Table 3: Students' perceived gains in two abilities to carry out interdisciplinary systems analysis tasks improved from before to after participating in the micro-credential activity, the seminar

Perceived ability for key skills in the seminar	Not at all able	A bit able	Somewhat able	Very able	Extremely able
Identifying potential research partnerships across multiple disciplines **Before** (n=9)	**0%**	**22.2%**	**66.7%**	**11.1%**	**0%**
Identifying potential research partnerships across multiple disciplines **After** (n=9)	**0%**	**11.1%**	**11.1%**	**77.8%**	**0%**
Articulating how my research can become interdisciplinary **Before** (n=9)	**0%**	**55.6%**	**44.4%**	**0%**	**0%**
Articulating how my research can become interdisciplinary **After** (n=9)	**0%**	**11.1%**	**22.2%**	**66.7%**	**0%**

We also wanted to know how useful students found the course and seminar activities for the tasks shown in Table 2 and Table 3 above. To elicit this feedback, a survey item asked students to rate a short list of course activities: Faculty lectures, Student presentations, Reflection analysis, Systems maps (Loopy), and Readings, and a short list of seminar activities: Faculty talks, Guest lectures, and Reflection activities. As results in Figure 4 and Figure 5 below show, students thought most of the activities listed in Figure 4 and Figure 5 below to be 'very' useful or 'extremely' useful in developing the skills in Table 2 and Table 3 above. For example, 77.8% of students ranked the faculty lectures in the course as 'very' useful and 22.8% rated it as 'extremely' useful. Conversely, students' ratings for systems maps (Loopy) in the course were more varied; 66.6% of students, rated this activity as 'very' useful or 'extremely' useful, while 22% rated it as 'a bit' or 'not at all' useful.

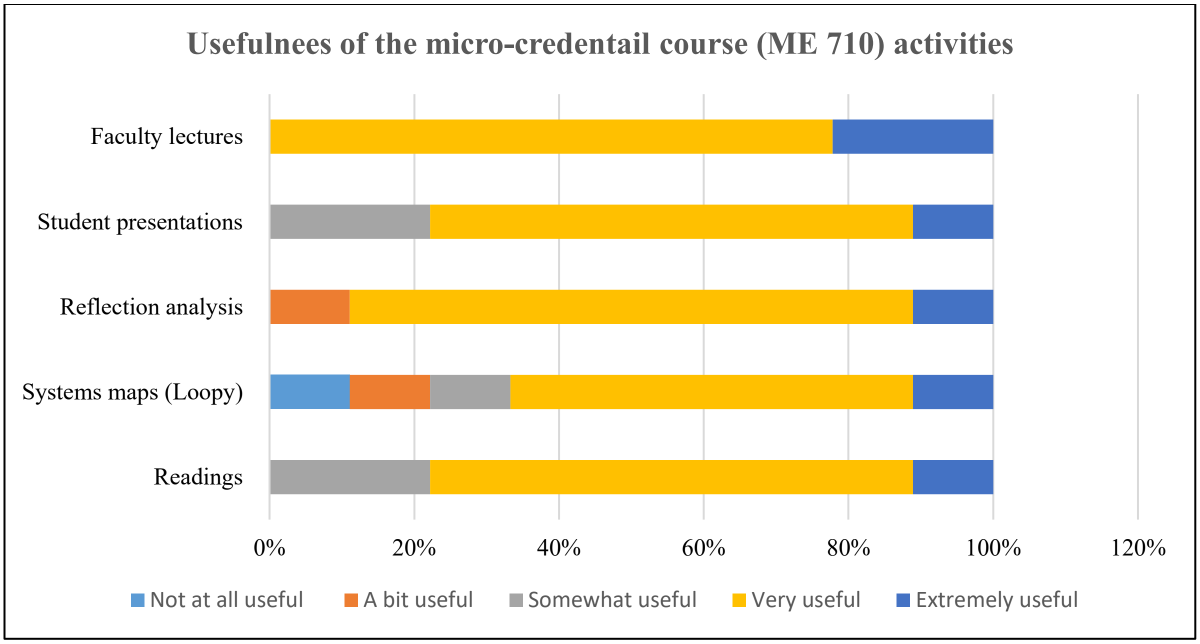

Figure 4: Students found activities from the micro-credential course activities were useful for helping them develop their skills.

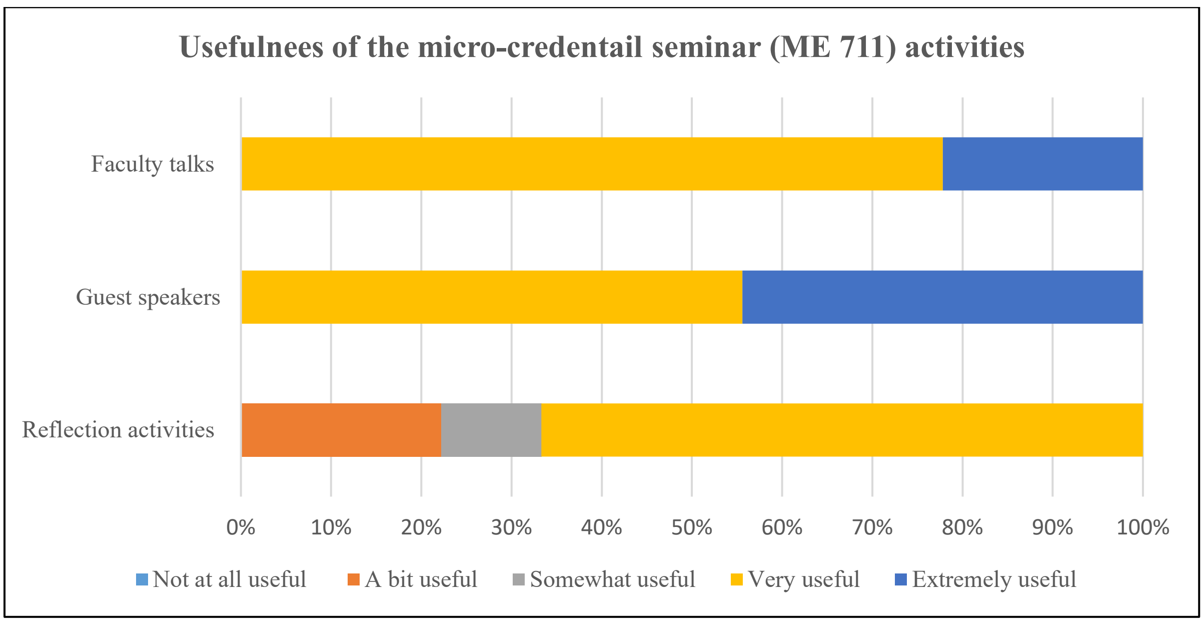

Figure 5: Students found seminar activities to be useful for developing their skills.

Discussion

As seen in the results section above, the feedback from students was very positive and shows that students improved their confidence in numerous skills after participating in the micro-credential activities and that most activities were helpful in developing technical skills (systems analysis) and transferable skills such as team building, systems thinking, and science communication. The evaluation also shows that most students graded the micro-credential activities, the course and seminar, overall, as an 'A' in their support of the development of skills in interdisciplinary analysis, team building, science communication, systems thinking, and FEW systems analysis, and that 44.4% of students somewhat and strongly agree that the micro-credential helped students with their career planning. These findings support that graduate students can expand their skills beyond the traditional discipline specific setting and acquire skills to be more competitive in the workforce through a for credit micro-credential.

There were some concerns about the effectiveness of using Loopy for interdisciplinary systems analysis (22% rated it as ‘a bit’ or ‘not at all’ useful) and the number of assignments in the course (a few students commented about it in the last item of the survey that asked for other comments or feedback). Faculty selected Loopy for use in the course because it is a free software with a user-friendly interface that allows students to easily understand, navigate, and make interactive simulations to develop intuition for how the system works and better understand complex interdisciplinary systems. Loopy can help students to understand and visualize the individual components of a system as well as their interconnectedness and interdependency. Even though there were some doubts about the effectiveness of using Loopy for interdisciplinary systems analysis, most students found it to be effective (i.e., 2/3 of students found it to be ‘very’ helpful or ‘extremely’ helpful). As systems modeling and simulations have been utilized as an instructional and conceptual help in interactive learning environments and have been promoting understanding of complex material by conceptualization [15], [22] – [24], we plan to continue use Loopy. However, we will continue to explore the use of Loopy and see if any adjustments are needed.

Regarding the number of assignments for a one credit hour course, based on the Carnegie Unit recommendation for class workload there seems to be a general agreement that for every credit hour class students should expect at least two hours out of class workload a week [32]. Ten assignments over the course of a 16-week semester seem to be a reasonable class workload to give students a better sense of where they stand within the course. However, we plan to examine the class workload and if we find that we ask students to do more than we assumed, we will consider reducing the number of assignments or keeping the assignments but adjusting the expectations for the work. We also plan to explore if there may be alternative assignments that achieve the same goals in less time.

From faculty perspectives, co-teaching and developing an integrated curriculum about systems analysis requires communication among faculty from different disciplines to ensure that lessons are related to each other, and the overall course topic. This requires faculty to move beyond their own comfort zone of teaching.

Conclusions

The micro-credential has been offered for the first time in fall 2025 semester. The micro-credential combines two activities, the one credit hour course and the 0-credit hour seminar. The course combined theory and practice, with lectures, class discussions, student presentations, and Loopy development of system maps throughout the semester. The course incorporated readings, lectures, and assignments to enhance students’ understanding of interdisciplinary systems analysis through the systems thinking lens while developing transferable skills. The seminar alternated between research talks and professional development sessions with a focus on the use of AI in academia, entrepreneurship, and visual thinking strategies. Students’ feedback indicates that through the micro-credential activities, they gained in their abilities to perform tasks that support technical systems analysis skills and transferable skills such as science communication and team collaboration. In addition, students found that the micro-credential has helped their career planning by expanding their knowledge and perspectives. Further, students found most course activities to be very useful for their skill building, in particular, faculty lectures, guest lectures, and student presentations. Finally, the structure of our interdisciplinary micro-credential can be beneficial to the development of an interdisciplinary micro-credential at the graduate level in other Higher Education Institutions.

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